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# Sub-Saharan Africa Report

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4 November 1985

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INTER-AFRICAN AFFAIRS

SWITCH TO ROLLER-TABLE MILLS ADVOCATED

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 30

[Text]

Two leading world authorities on ore milling believe Africa's mining industry could save vast sums in electricity and water by switching to modern roller-table mills for dry milling processes.

In separate visits to South Africa, Prof Klaus Schoenert, from the Technical University of Clausthal, and Dr Thomas Loesche, a specialist in mineral dressing, came to the same conclusion after inspecting South African mining and mineral processing installations.

Loesche roller mills, manufactured by Loesche South Africa, are in use in a number of South African coal-fired power stations, including the newest, Duvha.

In his week-long visit here, Dr Loesche investigated the prospective of supplying roller mills to other installations, notably cement and phosphates. The prospects, he said, look encouraging.

Because of their intrinsic design characteristics, roller mills offer important advantages over traditional ball mills, especially in the major savings they achieved in water and energy, Dr Loesche said.

Dr Loesche's trip was a follow-up to a previous visit when he had discussions with representatives from Escom, the Chamber of Mines, cement, phosphate and fertiliser manufacturers, as well as visiting a number of mines and mining houses and power stations.

Referring to cement production, Dr Loesche said: "When you study the latest development in roller mill design, with clinker grinding we have demonstrated that we can achieve energy savings of between 20% and 50% over the ordinary ball mill, while producing at least the same quality of cement.

"Loesche mills can be used for any kind of grinding when you want a dry product, and South Africa's

experiences of drought further demonstrate the value of water savings through the dry grinding method."

Dr Loesche claimed additional advantage for the roller mill in gold production, saying that tests in Loesche's own laboratories in Germany had shown that leaching time could be reduced by between 20% and 50% as a result of initial roller grinding.

Dr Loesche added: "Recovery was the same compared with the traditional leaching process. These are laboratory tests and we are going still further to demonstrate the unquestioned advantages of the roller mill in this aspect of gold recovery.

"While you are mixing the ground powder with water to the right water-to-solid value, which is required in the downstream process, you are achieving a tremendous saving in investment costs by avoiding thickening of the material."

CHAD

## EFFORTS TO COMBAT DESERTIFICATION DISCUSSED

Ndjamena INFO-TCHAD in French 6 Aug 84 pp 1-10

[Interview with Mahamat Ali, Director of Forests, Hunting and the Campaign for Combating Desertification, on the eve of National Tree Week; place of interview not specified]

[Text] Deforested landscapes, soil leached and totally eroded by the combined action of wind and water: this is the face of our country over a large part of its territory. The endemic drought that has persisted for almost 10 years does not explain the scope of this disaster, of course, nor could human activity alone account for it. Desertification is advancing at an accelerated rate, snatching thousands of hectares away from mankind each year. Its most advanced front, although it is difficult to determine its exact boundaries, is located right in the middle of the Sahel, but deforested pockets are also appearing in southern Chad, where climate conditions are more clement. The phenomenon is taking on the alarming appearance of a true national disaster against which national resources and human energy must be concentrated to change its course. This concern, latent since 1982, was publicized this year during National Tree Week, which is under the auspices of President El-Hadj Hissein Habre. By visiting the reforestation site, President Habre wished to lend support to the colossal task undertaken by the Departments of Water and Forests and to reaffirm the political determination of the Third Republic's authorities to join together to tackle the problem despite their various affinities.

But it is not an easy job to halt the desert's inexorable advance while preserving our environment's ecological balance and to restore our flora while encouraging the satisfaction of our people's industrial and energy needs. This goal quite naturally takes on the aspect of a gamble in a country in which, strictly speaking, there is no coordinated policy for combating desertification. The sectoral programs proposed by the Ministry of Water and Forests, however, suggest that ideas are being discussed for the technical definition of a general strategy. The director of forests, hunting and the campaign to combat desertification, Mr Mahamat Ali, whom we interviewed on the eve of the conference inaugurating National Tree Week, clearly perceives the shortcomings of the forestation policy followed to date by his respective department and is calling for greater mobilization of national resources to retard the desert's advance. In the second part of this interview he recommends opening a national debate on desertification to formulate a policy that would take into account the interdependence of desertification factors, and

thus the resources for combating it and the irreplaceable role of the Chadian people, the beneficiary and driving force of any program.

Question: National Tree Week began three days ago. Its limitations are obvious, however, with respect to a campaign for combating desertification. How do you define this concept? Is it sufficient to view it as an invasion of human settlements by the desert?

Answer: There are no exact or precise definitions of desertification. Many people continue to perceive the problem in terms of their concerns, the ecological characteristics of areas suffering from the phenomenon, and also the economic and social levels of the people affected. In a country like Chad, part of whose territory is desert, we perceive the phenomenon as an advance or descent of the Sahara southward or northward. I would only be satisfied with the definition given at the UN Conference on Desertification, held in Nairobi in 1977, which states: "Desertification is the reduction or destruction of the biological potential of earth, soil, finally resulting in the appearance of desert conditions." It is one aspect of the general degradation of ecosystems. To simplify the problem, we will merely say that desertification results from an overexploitation of plant reserves in ecologically fragile conditions.

Question: Are the underlying causes of desertification a result of human activity or the effect of climate on the environment? What are they? Do they apply to all countries?

Answer: At the time of last year's Dakar conference on a coordinated policy for combating drought and desertification, it seemed that the causes of desertification are fairly common to all countries. They can be classified into two groups: natural causes and those linked to human activity. Natural causes include drought, water and wind erosion, and the fragility of the ecological systems of most of our soils. As for causes linked to human activity, we could note, first of all, irrational cultural practices, overgrazing and especially bush fires.

Question: Which ones are most important?

Answer: I think that the problem should not be viewed from that standpoint. I say this because drought, a natural cause par excellence, is the result of a shortage of rainfall and we have no control over it. On the other hand, we can rigorously control causes of human origin. And there is an increasing tendency to believe that human causes outweigh natural causes, even though the latter are much more striking. For example, drought is noticed immediately, but the causes related to human activity, which are more subtle and insidious, have proved to be the main cause of desertification in several countries.

Question: Let's talk about drought a little, because in the minds of our fellow citizens it is often synonymous with desertification. Doesn't putting these two concepts in the same category misrepresent the real nature of the phenomenon of desertification?

Answer: I believe that drought is immediately perceptible and its outward signs are rather conspicuous: excessive mortality of standing trees, streams

drying up and depopulation, the result of a loss of soil fertility. This must be clear in people's minds, however. Drought and desertification are two quite different concepts. The first is a single event that recurs periodically, although no study has made it possible to reveal its exact periodicity, whereas desertification is the culmination of a process linked to the factors mentioned previously. Drought is considered to be a shortage of water in comparison to a base percentage, whereas desertification is the cumulative and accompanying effect of all the factors I listed earlier.

Question: Is there, in Chad, a line physically representing the desertification front? And if so, where is it located?

Answer: It is difficult to define the exact boundaries of regions that are undergoing desertification, or that are already desertified, inasmuch as the phenomenon doesn't develop along a continuous line. At present, our entire country is threatened with desertification. This is somewhat the [illegible] proof of what I was saying a while ago about the primacy of human causes in the phenomenon of desertification. Pockets of desert have appeared in particular around some communities in the southern part of the country, where rainfall is clearly sufficient. However! Another consideration must also be mentioned in this connection. Contrary to what people think, the most advanced front is not found at the boundary of predesert zones. It is located much further south, in the middle of the Sahel. I'll tell you why. Although predesert areas are ecologically more fragile and vegetation less abundant, the harshness of the climate and the absence of conditions permitting permanent human settlement have appeared to be balancing factors. The natural environment has been relatively spared. On the other hand, much further south, in the middle of the Sahel itself, conditions are more favorable. There are watering spots and pastureland, and the concentration of human beings and especially animals around these points create desertified rings connected to each other by transhumance trails. Through expansion, this phenomenon becomes part of the desert itself. Summing up what I have said, it is difficult to define an exact line beyond which we could call the land a desert.

Question: What is your assessment of the desert's advance in Chad? Disturbing, serious or disastrous?

Answer: I would say that no label is strong enough at this time to describe the disaster. If I had to choose between the ones you listed, I would readily choose disastrous.

Question: All Sahelian countries initiated vast programs for combating desertification long ago. Chad has lagged behind. Does such a policy exist? What is it based on?

Answer: There are sectoral policies at the level of each department. Without prejudging what other departments might say, I can speak for the Ministry of Tourism and Water and Forests. I am in a good position to do so. This ministry had a forestation policy that was suited, as much as possible, to our country's physical geography, i.e., a classification of zones according to plant groups. However, this policy was not officially sanctioned, much less given concrete shape by a Council of Ministers resolution, which has been done in some other countries. Based on our various plant groups and climate



zones, we have implemented a series of measures ranging from protection of our vegetation, by classifying a number of forests, to systematic reforestation of areas that we consider deforested. Reforestation of the areas around Ndjamena and certain other cities is part of that policy. On the other hand, in the case of livestock grazing areas we have tried to formulate a plan for restoring forest-grazing reserves. *Acacia albida*, whose beneficial effect on soil has been widely demonstrated, has been introduced in agricultural areas. We have also tried to raise our population's standard of living by developing some of our forest products. I am referring to gum arabic and shea butter.

Because of the various powers of the Ministry of Tourism, Water and Forests, the nature of our actions itself constitutes a campaign against desertification. It is perhaps this aspect that distorts the nature of the problem, since people are inclined to believe that combating desertification involves only the Department of Tourism, Water and Forests. Our role of policing forests and protecting the environment makes others think that this is solely our area of concern. That is where the problem lies, because desertification is the culmination of a phenomenon involving factors which do not fall solely under our department's jurisdiction. Concerning irrational customs or even overgrazing, you will agree with me that formulating a policy in such areas requires the action of the Ministries of Agriculture and Livestock Breeding. In answer to the question of whether there is a comprehensive, coordinated policy for combating desertification, I would say that in the last three years there hasn't been any.

Question: In your opinion, a forestation policy and a policy for combating desertification are quite distinct. What must be added to the former to derive a general strategy for combating the desert's advance?

Answer: Actually, a forestation policy could be part of a strategy for combating desertification.

As for adding something to a forestation policy to make it another policy for combating desertification, it would be enough for the other components of the rural world to participate in this phenomenon. It would be enough to include the rural population, the foundation of any policy, as well as other components contributing to the rural world's development. I mean the Ministries of Agriculture and Livestock Breeding and many others, given the multiplicity of parameters involved in this campaign.

Using the Department of Tourism and Water and Forests as an example, I can list our constraints in implementing our forestation policy. First, resources are quite inadequate for effective action. In addition, some of our actions have not been fully understood by the population. When we introduce species which we consider appropriate for implementing some of our programs, we note that generally they are poorly accepted by our population, to such an extent that some of our completed programs are considered a transplant in the rural world. The population, the principal beneficiary of what we are doing, does not feel included at all in what is being done and the result has been programs that constitute a socially artificial entity. To avoid this kind of problem, it will be necessary to approach these population groups and to obtain their prior support for anything that may be done. To do so, their needs must be taken into account and their desires known. This is why I



suggest that a national debate on the issue be organized, in which all parties involved in the campaign for combating desertification would take part, including the population. Because of the phenomenon's national nature and scope, our country's authorities should decide on the appropriateness of such a debate, specify its limits and formulate a working plan.

Question: Do you believe that educating the population about the phenomenon would be the starting point for any adequate strategy?

Answer: Absolutely. An aware population is much more apt to achieve the goals set by a plan for combating desertification. To carry out such a plan during our country's reconstruction phase, there is one outstanding priority, a priority which, while governing each of their actions, stands out forcefully: food self-sufficiency. I personally think that the strategy of this campaign for combating desertification should go hand in hand with the quest for food self-sufficiency. But this quest should not be carried out at the expense of our country's socioecological balances. From this perspective, the goals to be achieved might be food security, satisfaction of energy needs and environmental protection. More specifically, I think this will involve making the public aware and mobilizing them to obtain their effective and responsible participation in all projects for combating desertification. It will involve obtaining desirable human resources for appropriate training, and promoting scientific and technological research for a better understanding of the problem and for defining a strategy that is better suited for combating desertification. All of that implies a plan of action, which we see in the following approach: promoting a national debate that would lead to a number of recommendations which take everyone's views into account; formulating a master plan for combating desertification; formulating a rural code. This last feature is very important. It is an idea that has been discussed for some time and one which has been unanimously endorsed by every meeting of rural development experts (conferences in preparation for agricultural campaigns and conferences on livestock breeding).

Question: What exactly is a rural code?

Answer: In some countries there are sectoral codes; for example, the forestry code includes most forestry legislation while the agricultural code includes all legislation concerning real estate law. There is also a pastoral code governing the course and time of transhumance. To coordinate all this legislation, a common code would have to be created for all these areas.

Question: Thus it is a group of laws governing rural development in general?

Answer: Yes, it is. It would have the merit of regulating the use of glass, because in reality there are enormous problems in this regard. Such a code could possibly solve these problems. In general, a number of cohabitation problems arise among livestock breeders and farmers. A rural code could solve them.

Question: Going back to the phenomenon of desertification, the population must still understand the worth of a tree. What is its importance?

Answer: The importance of trees is well known to everyone in a country that satisfies 90 percent of its energy needs with firewood. Moreover, there are

other features and other uses of trees perhaps unknown to the general public. Trees help to stabilize soil, to regulate the courses of rivers, and to maintain water reserves on and in the soil. Sufficiently dense vegetation might influence the formation of clouds, a prelude to any form of precipitation.

Question: What is Chad's potential with regard to forests?

Answer: The latest studies we have state that we possess 16 million hectares of natural forest, of which we have set aside some 800,000 hectares for reserves, national parks and wildlife preserves, representing a classification rate of five percent, which is pathetic in comparison to what should have been done. For our part, we would be satisfied with a classification rate of approximately 30 percent. This is the goal we are trying to attain.

Question: Sixteen million hectares of forest--that's how many years of exploitation for satisfying energy and industrial needs?

Answer: That would be difficult to determine, since we would first have to quantify precisely our population's consumption. Such studies have not been done. I know that such an estimate was made for the city of Ndjamena. It dates back to 1974. It estimated annual consumption of firewood and charcoal at approximately 1,600,000 steres\* and consumption of wood for construction at approximately 306,000 structural components. These figures obviously applied only to Ndjamena, which had 210,000 inhabitants at the time. It would be more advisable to conduct the same study again for the entire country and obtain a national average. We hope to be able one day to bridge this gap in order to direct our policy better.

Question: My final question concerns a criticism. The most frequent reproach of the Department of Water and Forests is in regard to the introduction of species that you have called exotic. People don't understand why, instead of soapberry or bangalay trees, you are planting eucalyptus and acacia albida, which are practically alien to our country.

Answer: Acacia albida is definitely native to our country. As for the others, I agree with those making such criticism that we have almost systematized the use of exotic species for reforestation. There are several reasons for this practice. We note, first of all, that deforestation is proceeding at an alarming rate and to restore our flora we considered it necessary to use fast-growing species. Most of the species we have introduced possess that characteristic. I can also say that these exotic species have been studied. We have a great deal of knowledge about their behavior, which we do not have for our native species. The latter have the advantage of being immediately accepted by the population, but our knowledge of them is poor, since no study has been devoted to them. And we are not the only ones in this situation. All Sahelian countries use practically the same species. That means that even in neighboring countries no studies have been conducted to obtain better knowledge of our native trees. Such studies would be very expensive and we prefer to use our modest resources to achieve something

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\* One stere = one cubic meter of wood.

concrete. We have therefore tried to attend to the most urgent needs first by using species that we already know something about.

The second reason has to do with the fragility of our ecological systems. Native species supported by these soils are very specialized and perish if the least climate changes occur. This explains, for example, the high mortality rate observed among our vegetation since the beginning of the great drought of the 1970's. North of Ndjamena, we note a high percentage of dead standing trees. They are soapberry trees, Senegalese acacias and many other native species. Thus when it is question of reforesting such areas, should we use native species that have demonstrated their inability to adapt to new conditions? A study would thus be needed to determine whether local species could adapt to new climate conditions. However, we do possess such knowledge about exotic species, on which many studies have been done.

The third consideration has to do with our policy. We are not carrying out reforestation for the sake of reforestation. We assign specific goals to the reforestation that we undertake. When it is a question of producing firewood, I would agree that local species are more appropriate. But for the production of structural wood, wood for industry and construction, we must recognize that the qualities required for obtaining such wood are often absent in the case of our local species. For as much firewood as we need, we must also produce as much structural wood, which comes mainly from our palmyra plantations, which are seriously threatened. Being unable to rely on reforestation based on the use of palmyra trees, which are particularly slow-growing, we considered eucalyptus. The eucalyptus trees growing today in the vicinity of Walia are barely seven years old and can be of practical use in construction. These are the considerations that led us to continue along the chosen path, i.e., the introduction of exotic species. However, we have not lost sight of the possibility of developing our local species again one day. But we wanted to attend to our most urgent needs first and there was no possibility of devoting our meager resources to conducting research, whose results are difficult to guarantee.

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CHAD

# INDUSTRIAL DEVELOPMENT MEETING HELD

Ndjamena INFO-TCHAD in French 28 Aug 85 pp 5-9

[Text] ATP [Chadian Press Agency]--"The search for ways and means of protecting our businesses and our local products": This was the central theme of a day of study and reflection organized in Ndjamena on Sunday, 25 August, on the premises of the Training Center for Development (CEFOD) by the National Union of Chadian Workers (UNATRAT). About 100 delegates composed of union personnel and activists as well as some of the administrative staffs of our companies, particularly the Chadian Cotton Company, took part in this workshop during which the participants tried to grapple with the problems of contraband and the smuggling of foreign products that dangerously compete with our local products.

Mr Gabriel Dombal Djimbague, the secretary general of UNATRAT, who introduced this workshop, painted an overall picture of a few typical companies that constitute the pivot of the Chadian economy because they create jobs for workers and contribute to our country's economic and social development. In this way the secretary general of UNATRAT played up the socioeconomic impact of these agroindustrial companies like the Chadian Cotton Company, the National Sugar Company of Chad (SONASUT), the Chadian Textile Company (STT), the Chadian Cigarette Factory (MCT), the Logone Breweries and the Moyen-Chari Soft Drinks Company. Speaking of the Chadian Cotton Company, Mr Dombal stressed the fact that the introduction of cotton in our country in 1928 permitted us to establish some 20 factories which have been a source of jobs for several hundred people. Aside from its chief export product, which is fiber cotton, the Chadian National Cotton Company is interested in horizontal activities, specifically through the creation of the Moundou Oilworks and the soap factory, and the production of oil cakes and glycerine, which are highly valued on our markets as well as abroad. As for the STT, it produces all sorts of clothes, which are highly prized in Chad as well as abroad, and it also markets upholstery fabric and seat covers for vehicles.

Now these young factories are forced into dangerous competition by the illegal introduction of foreign products that are sold at lower prices on our markets, particularly in the capital. The secretary general of UNATRAT took as an example and proof of this the SONASUT which, with a monthly production of 30,000 tons of sugar, sees its products literally swamped by 60,000 tons of illegally imported sugar from Nigeria and Cameroon. The same holds true for the MCT or Bastos, and select Siats are being smoked less and less to the advantage of "Maizobi," the importing of which is banned in Chad. Not counting the snobbism of some Chadians (true, they are few in number) who have a propensity for a pipe

or foreign cigarettes -- Mustangs, Gauloises, Marlboros -- because of the publicity or a stay abroad. The STT and the Soft Drinks Company are not [illegible] since, aside from the WAX [expansion unknown] of Benin or Nigeria and Coca-Cola of Cameroon, from the standpoint of clothing on our market we see what is commonly referred to as "ngondja", or second-hand clothes. According to the national companies, the places where these foreign products are brought into the country are Chari-Baguirmi, Mayo-Kebbi and the geographic Ouaddai.

Mr Gabriel Dombal happened to speak of regulation of the business profession in Chad because, he explained, all lucrative, human activities are subject to laws. The essential purpose of this codification of trade is to protect individuals (merchants) and corporations, that is, the above-mentioned companies. This gives the state the opportunity to profit from trade and refloat the state coffers, specifically through the issuance of import or export licenses, IRPP [expansion unknown] taxes and the single tax. The secretary general of UNATRAT noted that it goes without saying that smuggling and contraband contribute enormously to the impoverishment of the coffers of the state and, insofar as they do, they involve a lost opportunity for the country's public finances. Aside from this, the economic and social role of these national factories can no longer be demonstrated. Actually, they contribute to the development effort, particularly through urbanization, the installation of road infrastructures, the construction of housing for personnel, the creation of jobs, the development of social services in some of the country's regions which lack them, the funding of the retirement fund, etc.

The secretary general of UNATRAT lastly noted that, despite the good will and dynamism of the managers of these companies and the Government of the Third Republic's readiness to adopt certain protectionist measures, the difficulties these factories are in leave them only two alternatives: to close down or resort to reductions of personnel. Scarcely joyful prospects for the nation and for the workers. This has already happened since the Chadian Cotton Company or BGMC [expansion unknown] have had to close down some of their plants due to the economic situation or a lack of machines. Chad, which is emerging from a long war, lives largely off of foreign aid and its tax system is in the process of being restructured. We must, therefore, absolutely protect our local factories. And Mr Dombal Djimbague sees two possibilities for recovery: government subsidies or resort to loans. But despite successive government subsidies for the public and parastatal enterprises, these companies have often tottered due to the lack of a spirit of initiative. And loans from banking companies run up against the irascible phenomenon of hoarding, which is currently practiced in Chad.

The secretary general of UNATRAT alluded to certain provisions of the Constitution and the articles of association of the UNIR [expansion unknown] as well as to certain statements made by President El Hadj Hissein Habre, which advocate a spirit of initiative and enterprise among all Chadians. He furthermore added that the goal of the revolution is to reach the point of assuring control over our political, economic, social and cultural situations. We must encourage private initiative and be capable of producing in the interest of Chadians and combatting all the disasters that are infiltrating our national economy. Chadians

must develop their creative genius by, for example, participating in companies like Air Chad, SONAPA [National Animal Production Company], National STAR [expansion unknown], etc. because, since its advent on 7 June 1982, the Government of the Third Republic has created the conditions that favor such development.

All these points developed by Mr Gabriel Dombal later formed the subject of a long debate. Thus the participants complained about the very high prices of domestic products in comparison with those introduced through smuggling and contraband, to wit: oil, soap and sugar. Some hoped that these companies would take all the steps necessary to satisfy consumer demand with local products. They nevertheless admit that, for the time being, distribution networks are practically nonexistent since companies like SCOA [expansion unknown], NCSKN [expansion unknown] and SONACOT [expansion unknown] have not resumed their activities. For some of the participants it would be desirable for the government to back certain merchants at the banks to permit them to increase their number of sales outlets for basic products. A privileged participant in this day of study and reflection, Mr Amos Maiport, the Chadian Cotton Company's merchandising manager, who provided important information on the company's agro-industrial and professional promotion, specifically on the Chadian Cotton Company's participation in certain Chadian units: National STAR, STT, SIMAT [expansion unknown], etc. After highlighting relations between the government and the Chadian Cotton Company, which are many-sided, Mr Maiport noted that, since Chadians themselves are not interested in their products, it is not surprising that the latter are not competitive. He went on to say that it is a question of organization and education before inviting Chadians "to be nationalists in terms of languages and consumption." Mr Maiport also revealed that in its projects the Chadian Cotton Company had the intention of creating a holding company that would include a data processing center, a travel agency, an independent oilworks and an independent soap factory which would be headed by a central board of directors.

This vast operation, which would revolutionize our country's economy, has been disrupted by the war and the Chadian Cotton Company has shelved the project since granters of funds like the International Monetary Fund and the World Bank are reluctant to finance such a project at this time. The participants, however, have one hope, that this project, even though costly, may be reactivated by the Government of the Third Republic within the framework of the reconstruction policy undertaken since 7 June 1982. A moment of detente when the participants tackled the problem of the "ngoundja," or second-hand clothes, which, it appears, compete with the STT and reduce our tailors to unemployment because the ngoundja are "ready-to-wear." After exchanges of bitter-sweet remarks, a participant provoked general hilarity when he exclaimed: "Since my birth, I've been wearing these second-hand clothes, my children too. So we must consider the average citizen's purse."

The fact remains that, after a long debate and after having worked on two committees, the participants in this day of study and reflection proposed recommendations the dominant features of which are the following:

In view of the problems with which Chad is confronted because of the war that has been imposed on us from outside, drought and famine;



Whereas Chad's survival rests largely on the productivity and expansion of the existing companies;

Whereas smuggling and illegal traffic in merchandise constitute a bottleneck for the national economy;

Whereas the regulation of commercial activities now in force, which plays a protectionist role to preserve the interests of the companies and merchants regularly listed in the trade registry, constitutes the life's breath of the country in their role of creating jobs, distributing income to households and paying various taxes that provide funds for public finances;

Conscious of the Government of the Third Republic's efforts to assure the social well-being of the local populations, the workshop participants recommend:

First, in the economic and social domain:

Tax relief for companies to help them produce at lower cost and sell at a higher profit.

Increase the number of sales outlets through retail merchants and public organizations in order to satisfy consumer needs everywhere.

Develop public awareness through the written and spoken press and the mass organizations like UNACOT [expansion unknown], OFUNIR [expansion unknown] and RAJEUNIR [expansion unknown] in order to persuade Chadian households to become aware of the danger resulting from smuggling and contraband.

Encourage national savings for the purpose of stimulating new investments.

Second, in the administrative and financial domain:

Rigorously apply the laws regulating the exercise of commerce in the country.

Give workers an opportunity to participate in the existing organizations concerned with commerce and the economy and in those to be created in the prospect of a recasting of those regulations governing workers, such as the enterprise committees, in such a way as to actively and positively contribute to the preservation of workers' purchasing power.

Limit the issuance of quota system licenses to respect the import quota.

Adopt energetic measures to stop smuggling and hard currency flight.

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CSO: 3419/566

CHAD

BRIEFS

BEI LOAN—ATP [Chadian Press Agency]—Within the framework of the Second Lome Agreement, the European Investment Bank (BEI) has granted a loan of 2 million ECU [European currency units] for small and medium-scale investments in Chad in industry, agro-industry, fishing, mining, energy and transports. This loan has been granted to the government, which will make the funds available to the Chadian Credit and Deposit Bank (BTCD) and the International Bank for Africa in Chad (BIAT). This loan has been granted in the form of a conditional loan (a loan the repayment, interest rate and term of which may vary depending on conditions set in the contract) for 15 years at the rate of 1 percent (one percent) of the amount of the risk capital provided for in the agreement and the administration of which is entrusted to the BEI. The funds will be reloaned by the two intermediary banks for projects selected in joint agreement with the BEI and in consultation with the government. The investments to be financed will consist of either the reestablishment of existing production capacities or the creation of new activities. [Text] [Ndjamena INFO-TCHAD in French 28 Aug 85 p 11] 11466

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ETHIOPIA

INVOLVEMENT WITH THREE-SIDED WAR EXAMINED

Paris AFRIQUE CONTEMPORAINE in French Jul-Aug-Sep 85 pp 46-52

[Article by Pierre Viaud: "The Forgotten Three-Sided War"]

[Text] Origin of the Rifts

After holding back the Muslim hordes for centuries, Ethiopia, the empire of Christendom on the African continent, had to face at the end of the 19th century the appetites of the European powers, particularly those of Italy which settled on the Eritrean shore as far back as 1869 after purchasing the port of Assab. As for France, it played the Ethiopian card by settling in Obock, near Djibouti, in 1884, while London and Rome drafted secret plans for dividing the empire. As far back as that era, the European powers wanted to block off all accesses to the sea. The peace treaty of 1896, which followed the first victory of black troops over European ones, kept Eritrea under Italian rule. Some time later, agreements ambiguously defined the boundaries of the French possessions. To the east and south, the English and Italians divided Somalia between them. Long before the conflict with Italy, Emperor Menelik had undertaken to enlarge the empire which remained bounded to Abyssinia proper, that is to say, the high plateaus, where the population spoke Amharic and belonged to the Christian religion. Victorious campaigns against the troops of Muhammed Abdullah Hassan, the Mullah of Somalia, who had aroused the population against the British and Italians at the beginning of the century, and southward expeditions had made it possible to annex the Harrar, Ogaden and Haud, the region of Kafa and the countries of Sidamo and Galla and give Ethiopia approximately the same boundaries that it has retained to this day.

World War II was to put an end to the Italian occupation. The Italian forces were soon driven to surrender under the onslaught of the British and the French resistance fighters with the help of Ethiopian guerrilla fighters. Haile Selassie, who had been forced to go into exile, returned to his capital in 1941. With the return of peace, Ethiopia encountered some difficulties re-establishing its integrity and independence. Rome even pretended to continue administering the country under UN trusteeship. Egypt was demanding Eritrea and Great Britain was considering linking the Ogaden to the Somalias. Finally, thanks to the drive of the Ethiopian minister of foreign affairs, Eritrea was placed under the Ethiopian administration as a federate territory, whereas the Haud and Ogaden, occupied by British troops up to 1954, were returned to Addis

Abeba. But the border with Italian Somalia, which Rome continued to administer under UN trusteeship, was not defined. In 1962, the Eritrean Parliament requested through a more or less manipulated unanimous vote the pure and simple incorporation of the territory into Ethiopia. The former Aksum empire then became the largest it had ever been throughout its history: 1,184,000 square kilometers, or twice the area of France. However, although it regained a sea-coast with the ports of Mesewa and Aseb, the Amharic-speaking Christian population no longer held the majority. It now accounted for no more than 40 percent of the approximately 25 million inhabitants. Barely over the trials of the Italian occupation and of World War II, Ethiopia was to be faced with the new problems of Eritrean separatism and Somali demands. The mixing of populations had been tremendous all through the tormented history of Ethiopia. It remains nonetheless true that a deep gap has persisted between the Christian Abyssinians, who act as the ruling class, and the Islamic populations of the Eritrean coast and eastern provinces.

The problems brought on by the emancipation of Africa were to replace the threat of partition which the colonial powers had placed upon Ethiopia.

#### The First Conflicts

The first border conflict with Somalia, independent since 1960, appeared suddenly in 1964. The British policy, which led to the union of the two Somalias, Italian and English, into a single nation, could not fail to bring to the emperor's mind the bad memory of the Anglo-Italian attempts at dividing Ethiopia, and Mogadiscio had not concealed its hopes of incorporating the Ethiopian Ogaden, Djibouti and the northeastern region of Kenya, three regions inhabited by Somali, in a "Greater Somalia."

Sudan acted as a mediator and a cease-fire was reached after a few weeks of hostility: The two parties promised to try to find a solution to their border dispute through negotiations. But, whereas the conflict with Somalia was abetting, at least temporarily, unrest was growing in Eritrea where a secessionist movement, the Eritrean Liberation Front (ELF), was being formed. Paradoxically, the ELF found support with the Sudanese government, which enabled it to organize in Khartoum demonstrations hostile to Ethiopia.

#### The First Diplomatic Strategy

From then on, the emperor's diplomatic strategy was dominated by the desire to secure alliances designed to counteract an unrest followed with assorted degrees of active sympathy by Arab and socialist countries.

In that context, it seems that the emperor's natural allies should have been the western countries and those African countries which were then generally favorable to Israel, Addis Abeba having easily recognized the latter due to the historical ties between the two countries. The United States, Kenya and France were of course favorable to Ethiopia. But the emperor embarked on a policy of rapprochement with the USSR, based on the memory of the friendly relations between Addis Abeba and czarist Russia which considered the Church a sister church of the Russian Orthodox Church. The USSR began building a refinery in Aseb as far back

as 1965, under the terms of a technical assistance agreement, and other European socialist countries in turn granted aid to Ethiopia. However, the worsening of the Israeli-Arab conflict and the civil war in Sudan were to complicate the situation. The Arab capitals were accusing Addis Abeba and Tel Aviv of supporting the Southern Sudanese rebellion and they increased their aid to the ELF. Early in the 1970's, Ethiopia established relations with Beijing and strengthened those established with Moscow. This rapprochement, however, failed to mollify its opponents, namely, the progressive Arab camp, which continued to criticize the emperor for both the United States' military aid and his support of Tel Aviv, accusing him, among other things, of having granted secret bases to Israel on the islands off the Eritrean shore. Thus, the ELF continued to receive weapons and it succeeded in carrying out several spectacular operations. The Ethiopian government went even further toward conciliation with the Arab and socialist countries: It announced the rupture of diplomatic relations with Tel Aviv, following the example of most African countries on the wake of the October 1973 war, and the progressive withdrawal of the United States from the Kagnev base which had accommodated up to 8,000 American soldiers and technicians.

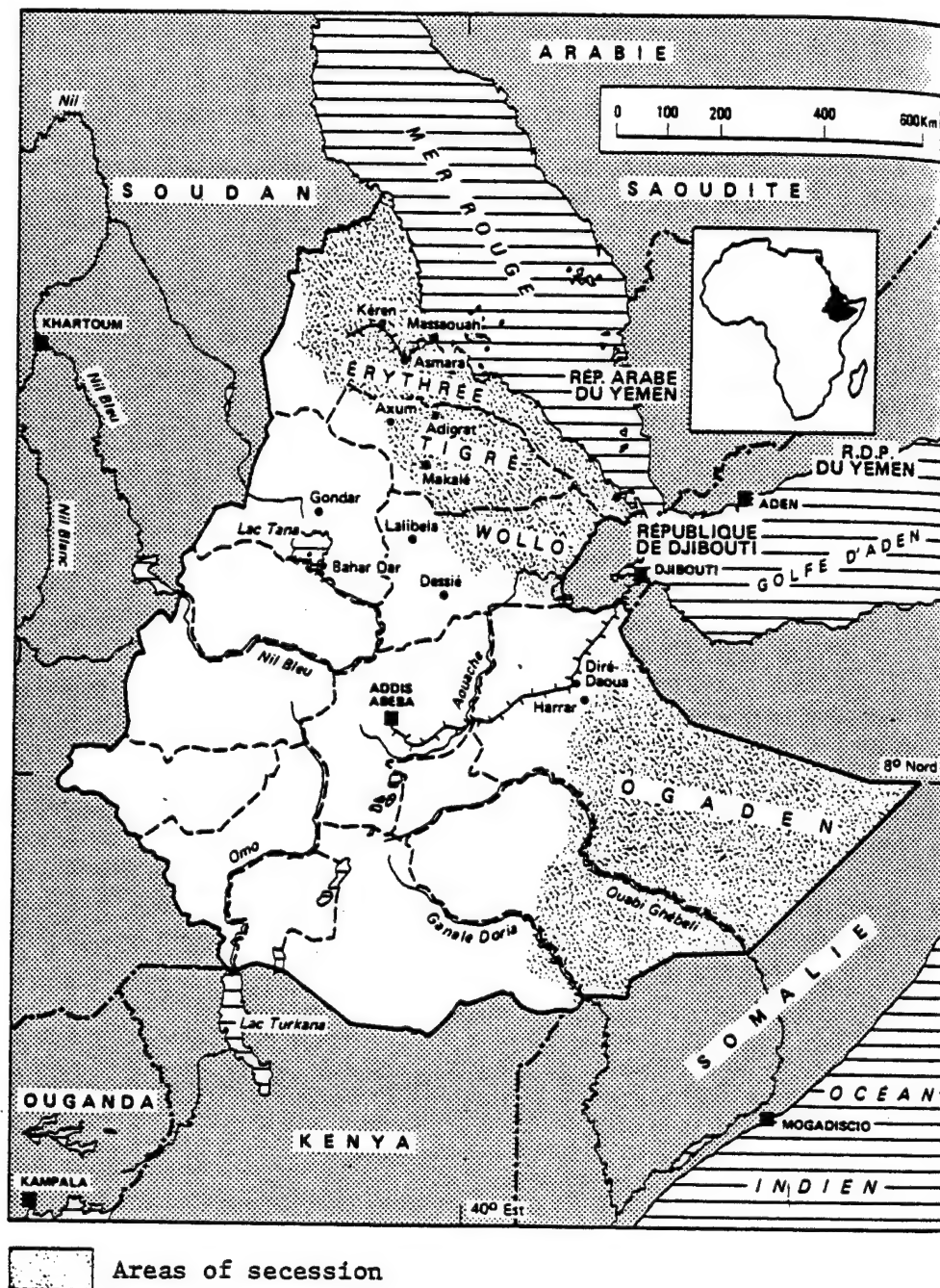
#### A Second Diplomatic Strategy Following the Emperor's Fall

Following the February 1974 events, an attempt at reform led, among other things, to the creation of a 120-member military council, the Derg. It became gradually apparent that it, alone, was in power and that it was only awaiting an opportunity to remove the emperor. Haile Selassie, the King of Kings, was unceremoniously deposed in September 1974. Several prominent aristocrats, such as Ali Mireh, the Sultan of the Afar, and Ras Mengesha Seymoum, the governor of Tigre, took to the hills.

The Derg forces resumed the offensive in Eritrea following the failure of a negotiation undertaken with leading personalities. Repression was carried out mercilessly and between 1,000 to 2,000 people were slain during the fighting in Asmara in February 1975. The Eritrean secessionists were weakened by their internecine dissensions. The ELF, founded in 1961 by Idriss Mohamed Adam, a pro-Arab and anticommunist Muslim, acquired a competitor in 1970, the Eritrean People's Liberation Front (EPLF), which was dominated by Christian and progressive elements and which rallied Osman Sabbeh, a former ELF member. The two organizations, which have been fighting and making up on and off, find refuge and support in the Sudan which periodically offers its mediation to Addis Abeba.

The Eritrean rebellion made substantial advances in 1976. Patterned on the Moroccan "green march," a "red march" of militiamen, raised in great number and hastily armed by the Derg, ended in failure. Yet, that same year, the EPLF was weakened by its disagreements with Osman Sabbeh who organized a third movement, the Eritrean Liberation Front/People Liberation Forces (ELF/PLF). For all that, the EPLF leaders did not succeed in getting along with the ELF. It remained that practically all of Eritrea was under control of secessionist movements, with the exception of the large urban centers of Asmara and Mesewa.

But in February 1977, there was a purge in the Derg and Mengistu Haile Mariam took over. He guided Ethiopia toward Marxism-Leninism. There was therefore a shift in foreign policy.



As a matter of fact, Ethiopia found itself in an increasingly critical situation. To the Eritrean danger was added the threat of the increased activity of the Western Somalia Liberation Front (WSLF), actively supported by Mogadishio, which was gradually investing the Ogaden. While touring Africa, and with the consent of Moscow, Fidel Castro attempted on March of that same year in Aden an operation of reconciliation involving the whole Horn of Africa. This attempt took place during a secret meeting with Mengistu, Somalian President

Siad Barre and the chief of South Yemen. But the two African chiefs of state refused the formula of a Yemeni-Somali-Ethiopian federation within which Eritrea and the Ogaden would enjoy autonomy.

Shortly thereafter, Mengistu Haile Mariam went to Moscow and the shift in alliances took place: The USSR promised weapons to the Ethiopian government whose relations with the United States deteriorated. Whereas Moscow had always supported Somalia, which had just begun to fight Ethiopia for the second time, Cuban troops and Soviet advisers were to reinforce the Ethiopian army.

The direct intervention of a superpower in the affairs of Ethiopia was therefore going to bolster a three-sided war, whose progress was so complex that public opinion seems to have lost interest in it. Surprisingly, this war has been forgotten!

### Eritrea, the Endless Secession

To understand the mechanism of the Eritrean secession is simple if one refers to the above-mentioned era dealing with the expansion of the Amhara, to the expense of the other, very often heterogeneous, ethnic groups, but whose common ground is not that, at the beginning, they were Christian but rather that the majority were Muslim. A 1962 vote of the Eritrean Parliament having changed the Eritrean autonomy born of World War II to a pure and simple annexation on behalf of Ethiopia, resistance therefore became organized. This resulted in the formation of the three above-mentioned liberation movements, the most powerful one being the EPLF which first appeared in the 1970's. After 25 years of fighting, the Eritrean fighters are the oldest guerrilla fighters in Africa. It is at their sides that many of the emperor's opponents once trained; it is at their side that today's staunchest opponents of the present regime are being trained.

The fighters are supported by an impressive organization in which the civilian population participates. The village militias in the mountains of the Sahel are engaged in transporting on the back of camels weapons and food to the various fronts. Reciprocally, the EPLF organized the peasants in women's, youths' and farmers' associations. Hundreds of "barefoot doctors" have gone into the villages to administer health care and impart basic sanitation principles. Schools, clandestine for the most part, have been opened and the EPLF sells basic commodities at reduced prices in its people's stores.

The EPLF's rear bases in the mountains of the Sahel are also impressive. With the patience of ants, fighters have dug the rocks in order to set up hospitals, shops, printing presses and garages in those caves. If activities are reduced during the day for fear of Ethiopian planes, they are in full swing at night: The information sector prints magazines, newspapers and school manuals and broadcasts radio programs in Tigre and Tigrinya, the two leading languages of Eritrea, as well as Amharic. Truck convoys link the camps to the Sudanese border through a network of literally hand-dug mountain roads. Despite the differences which remain between nomad and sedentary people and between Christians and Muslims, the fight for independence succeeded in unifying the Eritrean mosaic made up of 11 different peoples to whom the EPLF gave a common



cause. As a matter of fact, whether it involves production, education, political training, aid to refugees, or health care, the EPLF leadership operates as a real government and its technical and political cadres, trained, in the field, in the guerrilla fighting school, are many.

Thus, this organization has been resisting the army for the past 23 years. During that time, the latter launched six great-scale offensives; the last one at the end of 1982 was named "Red Star." It had been ordered by President Mengistu himself and ended in failure for the governmental forces.

It must be mentioned that the tactic has been simple ever since the guerrilla began. It has involved for each of the opponents not only securing the bush but also towns and urban centers in all the provinces of Eritrea. Each time the secessionists secure too large a number of towns, the government retaliates with a large-scale offensive against the towns, for the purpose of liberating them, as well as against the bush and EPLF hideouts.

Large-scale resources were used during the "Red Star" operation: 120,000 men, Migs, tanks, helicopters, Soviet and Cuban advisers, Libyan and South Yemeni contingents and, most of all, deadly nerve gases of the GA type were used for the first time. This time the town of Nakfa, occupied by the EPLF for the past 7 years, was targeted; but it held.

In-between large-scale offensives, the governmental forces harass the secessionist forces with repeated small-scale attacks. After 23 years of fighting, Eritrea seems impregnable, but war continues unflaggingly on a daily basis.

#### Tigre, the Eritrean Connection

In December 1974, Ras Mengesha Seyoum, the former governor of the province of Tigre, wanted dead or alive by the country's military leaders, formed a resistance movement aimed at obtaining the secession of the province he was administering. The movement was formed in the province of Bagemde, west of the Tigre, and the forces at the disposal of Ras Mengesha, which totaled some 600 men, were assured of the ELF and EPLF support. Despite sharing common purposes, the Tigrinya language and a deep distrust of the Amhara who have dominated the country for many years, the Eritreans refused to unite with the Tigre People's Liberation Front (TPLF).

With the passing of time, the goal of the Tigre rebellion was to seek, like many similar movements the world over, through the roundabout way of spectacular actions, an identity and authority denied them by the central power. Unlike the Eritreans who have gotten used to warring, so to speak, the Tigre-speaking people have made a specialty of taking hostages, which seems to have much more impact abroad.

Thus, in April 1983, the TPLF kidnaped 10 members of humanitarian organizations; in August 1984, 10 Swiss citizens in the province of Wollo; in October of that same year, 14 other foreigners were taken hostage during the attack against Lalibela. They were all released after a few weeks of detention-visit to the "liberated zones."

The TPLF officials, who demand the creation of a "multinational state," assert that they control 85 percent of the Tigre territory. It is true that, there too, none of the large-scale operations launched against the Tigre by the central authorities has been conclusive until now. The regular army seems to be controlling the great road axes and the main urban centers, but it does not dare venture outside these areas. The brief kidnaping of the five crew members, all of them French coming from Djibouti, of a Transall plane in Lalibela on 3 March 1985, who were bringing in a food shipment, revealed the strength of the insurgents. On 9 January 1985, Tigre fighters claimed to have been responsible for several attacks in the northern part of the country, in which 559 Ethiopians soldiers were assumed to have been killed or wounded. They even succeeded in holding Dabat, county seat of the district of Wogera, for 5 days.

#### Ogaden, the Dispute Between Somalia and Ethiopia

The first Somali-Ethiopian conflict has already been mentioned above. From November 1977 to March 1978, the two countries fought once again over the Somali populations living in the Ogaden. The Somalia of General Siad Barre, whom Moscow had dropped in order to support Addis Abeba, had been supporting the Western Somalia Liberation Front (WSLF) for a long time. Having launched into guerrilla warfare, the WSLF requested the support of Somalia, whose troops had invaded the Ogaden as far back as November 1977. After the success of the Soviet-Cuban airborne operation against Djijiga on 10 February 1978, Mogadiscio decided to withdraw its troops. Up to 12 March, the Soviet-Cuban troops, helped by the Ethiopian armed forces, "rid" the Ogaden of the resistance, forcing the WSLF to go underground. The failure of the Somali attempt at conquering the Ogaden was the logical consequence of an erroneous choice. To attack Ethiopia, whereas it had openly chosen the revolutionary path, was to risk losing Soviet support without being assured of gaining western backing: It meant dealing with a country temporarily fallen into anarchy, but which could recover its strength as soon as it became apparent that it would undoubtedly ally itself to Moscow.

During July 1982, Mogadiscio accused Addis Abeba of launching an offensive with tanks and planes, officered by Cuban, Soviet and South Yemeni advisers, whereas Addis Abeba allowed a radio station placed at the disposal of Somali opponents to continue to broadcast.

The violent fighting which took place on 15 August 1982 along the Galkayo central axis, in central Somalia, 40 kilometers within Somalia, forced President Siad Barre to decree a state of emergency in the border zone of the Ethiopian Ogaden. This localization of the fighting was not due to hazard. The Galkayo axis is in fact the most sensitive region of Somalia. There are barely 200 kilometers between the Ethiopian border and the Indian Ocean. By cutting this desertic strip in two, Ethiopia's goal was to ensure for itself access to the sea, its own accesses being obstructed by the Eritrean and Tigre rebellions. Emergency aid was granted by the United States in July and August 1982. Moscow's wish to see the Somali regime defeated did not occur. The Ethiopian troops retreated 5 months later.

Late in November 1984, the hijacking of a Somali Boeing to Addis Abeba by three Somali soldiers nearly tightened relations between the two countries

once again, Ethiopia attempting through the intermediary of liberation movements to destabilize President Siad Barre's regime since 1982.

**Two New Weapons Against the Secessionist Provinces: Hunger and Forced Resettlement**

The extreme drought, which has prevailed for several years in this part of the world, has led unavoidably to a shortage of food supplies in addition to the agrarian reform. The international aid which is being given to Ethiopia should therefore be distributed to all the regions of that country buffeted by a 100-year war. Yet, in order to deprive them of food supplies, the Addis Abeba regime has declared that signing a cease-fire with the secessionist provinces was out of the question. The concerned provinces are nonetheless succeeding in acquiring international economic aid through permanent guerrilla warfare.

Consequently, the central government found a way to end civilian aid to the liberation movements by resettling the populations from provinces opposed to its authorities to provinces placed under its authority. This Machiavellian scenario may stamp out the forgotten three-sided war.

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CSO: 3419/583



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GABON

BONGO'S SURPRISING MOVES TOWARD OPPOSITION VIEWED

Paris AFRIQUE NOUVELLE in French 21-27 Aug 85 pp 8, 9

[Article: "Amazing Bongo"]

[Text] On Sunday 11 August, at 4:00 local time, Capt Alexandre Mandja, sentenced to death for "participating in the creation of a movement tending to change the constitutional regime and to overthrow the present government," was executed. "For the first time," President Bongo commented, I rejected a plea for clemency, for I have already pardoned too often."

The following day, from Paris where it has its headquarters, the National Recovery Movement (MORENA), the banned opposition party, announced no less than the constitution of a Gabonese government in exile. The MORENA government, with Mr Paul Mba Abessole as its president, and Mr Max Koumba-Mbalinga as its prime minister, consists of 10 members.

Actually, the formation of this government in exile was to be announced last February at a press conference in the French capital, which was eventually forbidden. As is known, President Bongo does not "understand" that a "friendly" country like France will allow Gabonese opponents to attack openly, from the French territory, the present regime's management of Gabon. The publication of a book revealing practices of a nature to embarrass the Gabonese president's family, to attack openly, from its territory, the present regime's management of Gabon [as published]. The [word(s) missing] of this Gabonese government in exile, the Gabonese minister of interior stated that "unfortunately, this information, if it turns out to be true, may again seriously endanger the renewed excellent" relations between France and Gabon.

But, surprisingly, on the occasion of the 25th anniversary of the country's independence (see boxed insert [not reproduced]) on the 17th, President Bongo announced the liberation of six MORENA members who had been imprisoned since 1982. "I decided," the Gabonese chief of state explained, "to pardon once again, once more, those who have gone astray." He added: "Amnesty International and the League for Human Rights can no longer say that there are political prisoners in Gabon."

Apart from that, multi-partyism is out of the question: "It is only within the Gabonese Democratic Party that criticism is permitted, and those who will not understand this will find me on their way." Assessing 25 years of independence, Omar Bongo said he was proud that Gabon had become "one of the best endowed countries on the continent."

GUINEA

RELATIONS WITH SOVIET UNION OUTLINED

Conakry HOROYA in French 24 Sep 85 pp 1, 6

[Text] Commercial cooperation between the Soviet Union and the Republic of Guinea has been growing in a fruitful and dynamic way for a quarter of a century now. One of the contributing factors to this cooperation has been the long-term agreement signed on 8 September 1960, which has given it a solid contractual basis. This document rests on the principles of equality and mutual benefit, calls for reciprocal extension of most favored nation status, and provides for commercial exchanges covering a wide gamut of merchandise, as was intended by the two countries' external trade authorities.

Stable commercial ties have been formed over the last 25 years between the Soviet and Guinean export-import companies. The volume of trade between the two countries continues to grow: from 1960 to 1984 it has grown from 7.2 million to 90.5 million rubles. Specifically, Soviet exports to Guinea grew from 5.2 million to 33.5 million, while Soviet imports from Guinea increased from 2 million to 57 million rubles.

Bauxite from the National Enterprise of Kindia, built with the help of the USSR, is the mainstay of trade between the two countries. The accord on construction of the Kindia Bauxite Office (OBK) and the long-term contract signed within that framework provide for Guinea to deliver to the USSR, for 30 years beginning in 1974, 90 percent of all the bauxite produced by that enterprise. A little more than half of this amount serves to pay back the credits the Soviet Union has already provided Guinea for economic development, while the rest is delivered on normal commercial terms, with payment in freely convertible currency which Guinea uses for the purchase of necessary items.

The capacity of the Kindia Bauxite Enterprise is increasing. In 1984 it grew from 2.5 million to 3 million tons. Exports of Guinean bauxite to the USSR have also increased. Since the long-term contract went into effect, Guinea has supplied the Soviet Union 24 million tons of bauxite, 11 million tons of it paid for in freely convertible currency for a total of 130 million rubles.

Soviet exports to the Republic of Guinea consist primarily of capital equipment, automobiles, and spare parts. Great importance is attached to the maintenance of equipment furnished, spare parts provisioning, and the training of technically skilled Guineans.

Also, Soviet exports to Guinea include oil products, electric appliances, certain food products and other merchandise necessary for the Guinean economy.

It is sensible for trade between the Soviet Union and Guinea to have a long-term basis. Both sides want to maximize the potential for growth of mutually advantageous trade, further diversify the range of goods traded, and increase the total volume of deliveries.

#### Current Status and Prospects

The USSR currently has bilateral economic and technical cooperation agreements with 34 countries on the African continent. More than 570 projects, including 180 industrial plants, have been constructed or are now under construction in Africa with Soviet assistance.

Guinea was one of the first African countries with which the USSR established economic cooperation. The foundations of this cooperation were laid by the signature, in August 1959, of a bilateral agreement on economic and technical cooperation.

Since then Guinea has seen the establishment of 26 industrial and agricultural enterprises, social and cultural projects, and training programs. Many of the enterprises were the first to be established in newborn branches of the Guinean economy.

The national bauxite extraction enterprise in the Kindia region (OKB) is the most important project to come out of Soviet-Guinean economic cooperation. Today it is a large mining complex with a capacity of 3 million tons of bauxite per year. The USSR provides equipment, spare parts and working plant for the enterprise. More than 100 Soviet specialists are working in projects related to the complex.

Since the first years of cooperation, the USSR has provided Guinea assistance in many different forms, through the development of instructional systems and training of skilled Guinean manpower in diverse fields involved in the economic and cultural life of the country. The Polytechnic Institute of Conakry, now a university, has been in operation for 10 years now.

Soviet organizations are also helping Guinea to establish a scientific sector. A microbiological and virological laboratory was built in Kindia in 1977, and a scientific research center went into operation in 1981 in Conakry for research in the fields of oceanography and heliophysics, as well as for the study of the influence of tropical climate on materials and finished products.

The Military Committee for National Redressment [CMRN] and the Guinean government have determined that increased agricultural production and agricultural self-sufficiency are essential priorities. The USSR was one of the first countries to give concrete proof of its commitment to help the friendly Guinean people attain this important goal. A bilateral assistance protocol on the creation of a major multi-use agricultural production unit on 2,400 hectares of land in the Monchon zone was signed in June 1984. On 14 September 1984 in Conakry came the signature of a new economic and technical development cooperation agreement between the USSR and the Republic of Guinea. Among other things the accord calls for creation of a series of agricultural production

mechanization centers, seed selection stations, agronomy research centers, and a garage and repair shop for maintenance of transport vehicles. The accord also calls for major repairs on equipment and infrastructure at the bauxite extraction complex, the creation of an independent energy supply source for that complex, and the relaunching of the Simbaya Prefabrication Combine, which will help solve the housing problem.

Guinean officials emphasized at the signing ceremony that the USSR has always been a steadfast friend of the Guinean people, that it was the first country to come to Guinea's assistance after independence was proclaimed, and that since then Soviet-Guinean cooperation has ceaselessly grown, to the benefit of both the Guinean and Soviet people.

9516  
CSO : 3419/12

GUINEA

SAUDI DEVELOPMENT AID REVIEWED

Conakry HOROYA in French 26 Sep 85 p 3

[Text] On Monday 23 September 1985 the fraternal people of Saudi Arabia commemorated the 53rd anniversary of the unification of the country's various provinces. The occasion was celebrated with boundless enthusiasm, as is appropriate for a people who are enjoying to the hilt the benefits of progress.

In Conakry this historic date, a memorable one not only for the Saudis but for all Muslims everywhere, was celebrated simply but spiritedly. Site of the celebration was the Grand Independence Hotel, where His excellency Mr Wahib M. Saikhoun, charge d'affaires of the Royal Saudi embassy in Guinea, held a reception enhanced by the presence of a high-level delegation of the CMRN [Military Committee for National Redressment] and the government, led by Captain Kerfalla Camara, member of the CMRN, minister of territorial administration.

The reception was also attended by members of the diplomatic and consular corps accredited in Guinea as well as by several Guinean officials.

During the ceremony, which took place between 1900 and 2100 hours, Captain Kerfalla and Mr Wahib Saikhoun toasted the friendly ties of Islamic fraternity between the Kingdom of Saudi Arabia and the Republic of Guinea. They took the opportunity to review several aspects of cooperation between the two countries, particularly in the domain of economic and social development, where the kingdom and private Saudi institutions are participating in financing several ventures.

It was a time for recalling with satisfaction that in terms of economic and social development cooperation, the list of notable projects is already a long one.

In fact, "loans, commitments and nonreimbursable gifts provided by the Kingdom of Saudi Arabia to Guinea have reached a total of U.S. \$270 million." The kingdom is helping to finance several Guinean projects, as we have said.

Among these development projects, the most important are the Gueckedou-N'Zerekore road, the Sougueta cement plant, the education project, the rural health centers, village water projects, irrigated agriculture development, and the Faisal mosque in Conakry.

It should be mentioned that within the precincts of this mosque are expected to be built an Islamic center, housing for the imam and other Arabic scholars, a library and a water tower.

Saudi aid to assist Guinea's efforts to combat the effects of drought comes to \$9,127,600. and will see the completion of two programs:

1. Building of two irrigation dams (Mafenwol/Dounkimagna and Bafinf/Dolo) to facilitate truck gardening.

2. About a hundred wells equipped with manual pumps in the prefectures of Gaoual and Koundara, to relieve the rural areas hit hardest by drought.

Construction of the two dams has been turned over by GTZ [expansion unknown] to a Franco-German group (Daumas/Dywidag), which has already started work at the site.

The signing of this contract took place on 17 April of this year in Conakry, at a ceremony presided over by Captain Thiana Diallo, secretary of state for water resources and forestry, and his excellency Mr Wahib Saikhoun, the charge d'affaires of the Saudi embassy in Guinea.

All this will contribute to the further consolidation of the fraternal ties and traditional solidarity which have always characterized relations between the two countries.

9516

CSO : 3419/12

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LESOTHO

INFORMATION MINISTER ON ELECTIONS

MB021830 London BBC World Service in English 1709 GMT 2 Oct 85

[From the "Focus on Africa" program]

[Text] The Lesotho Government is clearly upset at suggestions that there was something improper in the conduct of the recent electoral process in which candidates of the ruling Basotho National Party were returned unopposed. Elections were scheduled to take place last month, but were canceled after the opposition parties failed to submit candidates by the nomination deadline, the previous month. They have alleged that they were not given proper access to voters rolls, enabling them to get the required 500 supporters for each of their candidates, and they have accused the government of Chief Leabua Jonathan of hijacking the Constitution and effectively disenfranchising the people of Lesotho. On the line to Maseru, (Kordera Mense) asked Desmond Sixishe, Lesotho's information minister, how he responded to such charges.

[Begin recording] [Sixishe] Well, I think the first responsibility of all political parties is to provide candidates when and if an election is declared. Parliament was dissolved last December, which was the last specific indication that we were going for elections. The prime minister announced 2 years ago that we were preparing for elections, and I think the responsibility of all parties was to provide candidates in all the constituencies, and that is a party responsibility. Our party did it, but the other political parties did not provide candidates. The reason they did not provide candidates is that there were no people willing to stand for them.

[(Mense)] The major complaint by the opposition parties is about access to the voters rolls, and they claimed when they went to court on this issue that they had only been given 2 days to inspect the lists.

[Sixishe] I think it is now well known that...[changes thought] what the decision of the court was, because the electoral rolls have in fact nothing to do whatsoever with nomination day. The law is very specific; it says that the government will provide nominational laws 1 month prior to a general election.

[(Mense)] Is it not correct that each candidate needed 500 supporters and that, in order to get those supporters, he needed to be able to see the full electoral list first?

[Sixishe] That is incorrect. It is the responsibility of each candidate at his constituency to go around the constituency personally, and knock at doors and seek supporters who will in fact be his witnesses, 500 witnesses, and those who support him will sign on a piece of paper in their homes.

[(Mense)] But is it not correct that these 500 supporters would have to be on the electoral roll?

[Sixishe] Precisely, it is quite correct.

[(Mense)] The opposition parties say that they were not given a chance to see the full electoral list, even when they did see them.

[Sixishe] That is not true, because the lists were available in all 60 constituencies. What I can tell you is that the opposition parties are going around making all these accusations simply because they noticed a long time ago that they would get no support. May I ask Mr (Mense) why for example--taking into account their accusations, assuming that they are correct--why is it up till nomination day that they did not submit one single candidate to the electoral office? One should be talking about withdrawal of candidates as a result of chicanery on the part of the government. One should be talking of withdrawal of candidates as a result of harassment by government, right? But there is no question of withdrawal of candidates. In fact, what appears to have happened is that they did not even register one single candidate.

CSO: 3400/115



MAURITIUS

BERENGER RETURNS FROM MEETING IN REUNION

Port Louis LE NOUVEAU MILITANT in French 20 Sep 85 pp 1, 4

[Text] The leader of the opposition, Paul Berenger, returned to Mauritius the day before yesterday after 2 days of talks on Reunion, where he met European parliamentarians, representatives of various Reunion political parties and the acting secretary general of the Comorian Democratic Front, Mr Yousouf Moussa.

A delegation from the European Parliament is currently in Reunion. It includes deputies from Italy, France, Greece, Britain and Germany.

Officials from Guadeloupe, Martinique and French Guyana are also on Reunion.

Paul Berenger met with some of these parliamentarians, but most notably with the acting secretary general of the "Comorian Democratic Front," with whom the MMM [Mauritian Militant Movement] leader had a lengthy discussion of the situation on the Comoro Islands and Mayotte.

Most of the leaders of the "democratic front" based in the Comoros are currently in prison, including the secretary general of the front himself.

Mr Yousouf Moussa, acting secretary general of the front, is based on Mayotte.

Paul Berenger and Mr Yousouf Moussa also discussed relations between the front and other movements opposed to the regime of President Abdallah of Comoro, including Mouzair Abdallah's Union for a Democratic Republic in the Comoros, Mr Takiv's National Union for Democracy in the Comoros, the FNNK [expansion unknown] and the Organization of Comorian Youth.

Paul Berenger also met with leaders of the Reunion Communist Party [PCR], the Socialist Party [PSR] and the Reunion Progressive Movement [MPR], as well as with Dr Lagourgue, president of "Unir" and vice president of the Reunion Regional Council.

9516  
CSO : 3419/12

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MAURITIUS

BRIEFS

MINISTER VISITS MADAGASCAR--Mr Karl Offman, minister of cooperatives, will go on Sunday to Madagascar. He will be accompanied by Mr Benjamin Moutou, "principal cooperative officer." The minister will have meetings with Malagasy cooperative movement officials. The talks will primarily concern possibilities for increasing trade in cooperative products between the two countries. The talks may cover possible bulk importation (by Mauritius and Madagascar) of livestock fodder. After his trip to Madagascar, Mr Offman will then visit the Soviet Union, where he has been invited by the Russian cooperative movement. We note that representatives from Madagascar, Reunion and India, including the Indian minister of agriculture and rural development, will be in Mauritius next month to attend the 15th cooperative [as printed]. [Text] [Port Louis L'EXPRESS in French 23 Sep 85 p 5] 9516

9516  
CSO: 3419/12

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MOZAMBIQUE

POLITICAL RELATIONS CONSOLIDATED WITH IRAN

Maputo NOTICIAS in Portuguese 6 Sep 85 p 3

[Text] The foreign affairs ministers of Mozambique and Iran expressed the desire to consolidate political relations between the two countries and "stressed the need to cooperate closely in the United Nations, the Non-Aligned Movement and other international organizations to form a base for broadening cooperation."

Mozambique and Iran also condemned all violations of international law in the Iran-Iraq conflict. In a joint communique issued at the conclusion of a visit to Iran by Joaquim Chissano, Mozambican minister of foreign affairs, at the invitation of his Iranian counterpart, Akbar Velayati, both countries deplored "any invasion of one country by another" and violations of international law in the Gulf war, "such as the use of chemical weapons, attacks on civilian targets, and threats to free navigation, commercial vessels and oil tankers."

Iran has accused Iraq of resorting to chemical warfare and the Iranian oil loading facilities at the Kharg Island terminal have been attacked repeatedly by Iraqi aircraft.

The communique also deplores the apartheid government of South Africa and unnamed Western countries for their "support of bandits in Mozambique" and calls for "the immediate cessation of all aid to these enemies of the Mozambican people."

The two ministers pointed out the close relations between South Africa and Israel and well-received measures being taken to isolate these two pariahs. They called for the immediate lifting of the state of emergency in South Africa and the unconditional release of political prisoners from "apartheid" prisons.

The ministers expressed "repugnance" at the role played by "certain Western countries" which support the South African regime, "thereby condoning its crimes."

The communique appeals to all Middle Eastern and African countries to be vigilant "against terrorist actions which have tried to spread criminal

propaganda and obtain material support in these countries against the People's Republic of Mozambique."

On the issue of Western Sahara, the communique supports the Saharan people's right to self-determination and demands that Morocco "respect OAU resolutions on the Sahara."

Both ministers vigorously deplored imperialistic interference in the internal affairs of Latin American countries, particularly Nicaragua and Grenada. President Ronald Reagan recently called Iran, Nicaragua and three other countries part of an alleged worldwide center of "terrorist conspiracy."

Mozambique and Iran also repeated their commitment to the Movement of Non-Aligned Countries and expressed opposition to "imperialist interference in the affairs of Africa and the Middle East," encouraging the Non-Aligned Movement to resist such interference.

They suggested that member nations in the Non-Aligned Movement which act contrary to the Movement's principles "should be subject to sanctions or expelled."

No specific case was mentioned, but a ready example is Indonesia's invasion and annexation of the former Portuguese colony of East Timor in flagrant violation of the principles of the Non-Aligned Movement.

8844

CSO: 3442/3

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MOZAMBIQUE

TRANSPORT MINISTER MEETS ZIMBABWEAN COUNTERPART

MB042022 Maputo Domestic Service in Portuguese 1700 GMT 4 Oct 85

[Text] Alcantara Santos and Herbert Ushewokunze, the ministers of transport of Mozambique and Zimbabwe, respectively, held a meeting in Beira city today. The meeting was aimed at finding practical ways of implementing the programs in their sector within the framework of the SADCC. The Mozambican minister of ports, railroads, and merchant marine noted that the meeting was the first to be held after the recent victory achieved at the Gorongosa hills in Sofala Province by a Mozambican-Zimbabwean joint force against armed banditry. Alcantara Santos pointed out that SADCC's transport commission was a valuable instrument not only for the two countries, but also for the other countries that use the port of Beira to transport their merchandise.

Within the framework of this solidarity, the Mozambican and Zimbabwean ministers of transport described as positive the Nordic countries' initiative which have been rendering assistance in the field of communications.

The two ministers also reiterated the transport sector's great responsibility in developing the region and above all in eliminating economic dependence on South Africa.

In turn, Herbert Ushewokunze, the Zimbabwean minister of transport, underlined that the port of Beira was presently being used to half of its capacity compared with the 3.3 million tons per year that the port can handle. This situation is caused by the conditions of the railroads serving the republics of Zimbabwe and Malawi and Mozambique's central region, which do not offer stability in the movement of trains. However, the efforts being made at present are likely to improve the handling capacity of the port of Beira. These efforts include dredging work at the port, its expansion, and the reconstruction of goods platform, as well as the establishment of a container terminal. In general, the Beira-Mutare-Harare railroad and the roads only require rehabilitation work to enable them to handle the transport of about 4 million tons of merchandise per year in the near future. To meet this capacity, according to the Zimbabwean minister of transport, there is a need to introduce a system of centralized control in the city of Beira.

CSO: 3400/115

SAO TOME AND PRINCIPE

BRIEFS

ARMED FORCES CELEBRATE ANNIVERSARY--Manuel Pinto da Costa, president and commander-in-chief of Sao Tome and Principe, participated in the commemoration of the tenth anniversary of the Armed Forces Friday. In a short speech, Pinto da Costa said that the Armed Forces have always responded "with honor and dignity," but should prepare for "an efficient reorganization to meet our renewed country's uncertain future." The president added that "the Sao Tome public is confident that the Revolutionary Armed Forces of Sao Tome and Principe (FARSTP) are a reliable force in the defense of the Nation, actively participating in the social and economic development of Sao Tome and Principe. The keynote ceremony of FARSTP Day was held at General Headquarters Square and was attended by officials, soldiers, representatives from the Party, government and diplomatic corps and many others. New recruits were sworn in and cards were given to new Party militants in the Armed Forces. [Text] [Maputo NOTICIAS in Portuguese 9 Sep 85 p 1] 8844

CSO: 3442/3

SENEGAL

GOOD RAINFALL BENEFITS CROPS

In Ziguinchor

Dakar LE SOLEIL in French 24,25,26,27 Aug 85 p 10

[Text] The arrival of relatively well-distributed rains throughout the Ziguinchor region eases, however slightly, the anxiety at the beginning of the agricultural season not only allowing the pursuit of labor and sowing but also contributing to a satisfactory crop.

That is, at least, the predominant feeling resulting from the last meeting of those who follow the agricultural season, which took into account the rainfall, the state of affairs regarding the crops and parasitic infestations.

In the opinion of an Agriculture Ministry representative, the peanut, at the branching stage, is beginning to flower in places, while the millet shows good development with a satisfactory vegetable-like appearance.

Concerning the rainy season, the first seedlings are starting to send out new shoots at the very time that the aquatic rice, currently in seed beds, is growing well. The beans and manioc are experiencing respectively a timid start from seedlings and a good take-off from plantings.

As for parasitic infestations they have reappeared at Bignona, with caterpillars and locusts attacking the grains, especially rice, corn and millet.

According to the Agriculture Ministry representative, treatments have started and the dispersal of insecticide powders is underway.

At the latitude of Ziguinchor, the battle against the defoliating caterpillars is also going forward and, in the face of the regular termite attacks on the rice in the seed beds, "propaxur" [translation unknown] has been distributed in order to combat these pests. In Oussouye Department, it is especially the persistence of the "zonocerus" [translation unknown], at a low density, which has been observed.



At this latitude, the dispersal of insecticides is pursued in order to check the parasitic infestations.

#### Tivaouane

Dakar LE SOLEIL in French 24,25,26,27 Aug 85 p 10

[Article by Mamadou Ndiaye]

[Text] The condition of vegetables demonstrates that the crops are doing well in the Tivaouane Department. This is due to the abundance of rain and the annihilation of the parasites which could result in limited growth. In the arrondissement of Pambal, the rural communities of Taiba-Ndiaye, Meouane, Koul and Thilmakha are at the head of the class thanks to a good measured rainfall, unlike certain other zones where the precipitation has only barely begun.

Still the agricultural sector has fought a fierce battle in order to prevent a parasitic attack, especially in the zones of Ngandiouf, Santhiou-Bouna and Mbayene which have received a large quantity of phytosanitary products. On the other hand, at all the rural community centers as well as the CER [Rural Expansion Centers] a fairly large quota of these products has been distributed for a good fight against parasites which could eventually appear. As with crops, the livestock is also doing well according to the head of the livestock sector who estimates that, thanks to the multiplication of pastures, peace again reigns between the stock breeders and the farmers.

As for the rainfall, its distribution over time has been judged satisfactory, unlike last year - provided one compares the end of July - when only the Pambal and Tivaouane posts had surplus rainfall.

Yet a halt in the rains has been observed for 3 weeks in the arrondissements of Meouane and Merina-Dakhar. Nevertheless, the situation is becoming normal again thanks to the recent downpours.

#### In General

Dakar LE SOLEIL in French 24,25,26,27 Aug 85 p 10

[Article by Sammy L. Chaupin: "New Contract"]

[Text] Normal rainfall. On the whole a satisfactory crop. This assessment of the current agricultural season according to the different CRD [Regional Development Commissions] was confirmed by the Minister of Rural Development (Soleil 12 August). This assessment was reassured by the late onset of winter creating concern at the beginning of the season.

Year one of the new agricultural policy is thus assured support which should, if it is confirmed and remains in tact, be worth a return on the fields and a profit on the efforts agreed upon by the government and peasant-- two partners for whom relations are modified and soothed by a new aid system.

One side has accepted the decline and revised the list of crops to the benefit of the other based on the average rainfall of recent years. The change, in addition to new management strategy for which the results are already showing, as much from the regional plan as from the choice of theories, frees man from the land to make him a spokesman of a new type drawn by a political willingness and an economic situation to a mentality of continuing assistance which manifests itself in his spirit and in his efforts at the time of the next marketing campaign.

The new relationships which widen the range of decisionmakers, and their awareness through the distribution of information should create a position of choice allowing the peasant to farm certainly according to his needs, but also for certain governmental objectives contained in the development plan of which the village, charged to contribute to the results, is unfortunately often ignorant and discovers only through certain accomplishments.

It is a question of, in fact, being a farmer, with long experience, made responsible by new demands and ideas, an actor truly involved in the process of economic development. Also conforming personal needs and national objectives to benefit the general interest. The allure of winter and the perspectives of a good harvest favor not doubting the accomplishment of all these topics and a better perception of the language of truth. The mission must not only be simply to produce but also to know what to produce and why to produce it--a task which must be written into the framework of the new agricultural policy and which everyone should support from the grassroots.

12308

CSO: 3419/604

SOMALIA

BRIEFS

SOLDIERS KILLED IN MUTINY--Reports from the headquarters of the 9th General Ayanshe Division of the Democratic Front for the Salvation of Somalia, DFSS, wing of the Somali opposition forces say that a mutiny by the 35th Brigade of the loyalist troops of the fascist Mogadishu regime on 29 September 1985 resulted in the death of six soldiers and many otherw wounded. The loyalist troops of the Mogadishu regime stationed at Dabad clashed among themselves after a vehicle carrying Qat was confiscated by a group of soldiers. The reports add that the brigade commander was seriously wounded during the fighting. [Text] [(Clandestine) Radio Halgan in Somali to Somalia 1700 GMT 3 Oct 85]

CSO: 3400/115

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SOUTH AFRICA

INTERNAL SECURITY ACT RESTRICTS MEETINGS

Pretoria GOVERNMENT GAZETTE in English 27 Sep 85 pp 1, 2

[Text]

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GOVERNMENT NOTICES

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MINISTRY OF LAW AND ORDER

No. 2221

27 September 1985

GATHERINGS PROHIBITED UNDER SECTION 46 (3)  
OF THE INTERNAL SECURITY ACT, 1982

Whereas I, Louis le Grange, Minister of Law and Order,  
deem it necessary for the maintenance of the public peace,  
I hereby—

- (1) under section 46 (3) (a) of the Internal Security Act, 1982 (Act 74 of 1982), prohibit any gathering in the Republic during the period 27 September 1985 up to and including 31 March 1986, except any gathering for the purposes of a *bona fide*-sport occasion or which is held within a building; and
- (2) under section 46 (3) (b) of the said Act, prohibit any gathering in any building wheresoever in the Republic during the period mentioned in paragraph (1), if such gathering is a gathering organised, convened or held or otherwise brought about—
  - (a) to advise, encourage, propagate, advocate or promote the non-attendance or opposition to the attendance of any school, college, university or other educational institution by any person; or

- (b) to advise, encourage, instigate or incite, except in so far as it is not prohibited in terms of section 65 of the Labour Relations Act, 1956 (Act 28 of 1956), any person to leave his work or service or not to return to such work or service, or to delay or impede it.

The prohibitions contained in paragraphs (1) and (2) shall not apply to any gathering expressly authorised by me, or, subject to the provisions of section 46 (3) of the said Act, by the magistrate of the district in which the gathering is to be held.

Government Notice 705 of 22 March 1985 is hereby withdrawn.

L. LE GRANGE.

Minister of Law and Order.

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No. 2222

27 September 1985

AMENDMENT OF PROHIBITION ON GATHERINGS

Under the powers vested in me by section 24 of the Internal Security Act, 1982 (Act 74 of 1982), I hereby amend Government Notice 1433 of 28 June 1985 by—

- (1) The substitution for the expression "under section 46 (3)", where it appears for the first time, of the expression "under section 46 (3) (b)"; and
- (2) the deletion of the word "or" at the end of paragraph (a), and paragraph (b).

L. LE GRANGE.

Minister of Law and Order.

CSO: 3400/185

INDUSTRIAL DEVELOPMENT STRATEGY WHITE PAPER SCORED

Johannesburg THE SOUTH AFRICAN MECHANICAL ENGINEER in English Sep 85 p 377

[Editorial by L.R. Robinson]

[Text]

This recently issued White Paper is another exercise in futility. It is couched in all the right-sounding terms but makes no specific recommendations or planning except in the broadest terms.

It started in June 1977 when the Minister of Economic Affairs appointed a study group under the Chairmanship of Dr S J Kleu, Chairman of the Board of Trade and Industries. The Report on industrial Development Strategy (Kleu Report) was submitted in February 1983. With a view to preparing a White Paper on the broad strategy recommended by the Study Group and securing the largest possible co-operation of the private sector, the Minister of Trade and Industries referred the report to an Industries Advisory Committee under the Chairmanship of the Minister. The Committee comprised the then Deputy Minister of Industries, Commerce and Tourism, the then Director-General of Trade and Industries, the Chairman of the Board of Trade and Industries and representatives from organised industry and commerce as well as other knowledgeable persons serving in their private capacity.

After discussions with various Departments, the Reserve Bank, South African Agricultural Union, NPI, CSIR and the SA Foreign Trade Organisation and senior business executives, the basis for a White Paper was prepared. The White Paper was eventually issued in the usual form, recommendations by the Committee with Government comment, in May 1985 — eight years after the formation of the Kleu Committee.

Mention is made, for instance, of "A well trained corps of scientists, managers, technologists and technicians" as being "essential in order to develop technology, absorb it and apply it". The Committee has apparently never heard of engineers!

It emphasises that technological policy should be in a market-orientated economy where the decisions on technological matters in industry are taken by individual entrepreneurs and that the technology they will apply will be whichever is the most profitable for them. Agreed, but who will decide the policy?

The White paper goes on to suggest that to ensure that the national economic, industrial and technological targets are integrated to an optimum the bodies best suited to co-ordinate these aspects at one point are the CSIR, NPI and SABS as technical bodies among others.

The usual popular noises are made about low productivity but the White Paper ignores the lack of highly qualified managers to give workers the means to become more productive and ignores the question of increased automation to reduce unit costs as seen against job provision, use of robots, etc.

The White Paper, apart from other deficiencies, provides an interesting study of the various commissions of Inquiries, White Papers, and Reports of the Government since World War II, but does not provide evidence of any results emanating from their reports or recommendations.

It is strongly recommended that the organised engineering profession submits a carefully compiled comment on the White Paper in an effort to give assistance to the Minister in developing this all-important strategy.

CSO: 3400/185



SOUTH AFRICA

NUMBER OF UNEMPLOYED DOUBLES

Johannesburg THE CITIZEN in English 2 Oct 85 p 13

[Text]

DURBAN. — The number of officially registered unemployed in South Africa has risen from 64 226 in August 1984 to 122 518 in August 1985, an increase of 90,7 percent, Dr Piet van der Merwe, Director-General of Manpower, said at the International Institute Personnel Convention in Durban yesterday.

Dr Van der Merwe said that according to the latest population surveys, about 500 000 Blacks were unemployed in June 1985 while 85 000 Coloureds and 23 300 Asians were unemployed in May 1985.

He said unemployment was undoubtedly one of the most serious economic problems in the Republic and was increasing at an alarming rate.

It had numerous side-effects: These were the increased disruption of family; increased feelings

of irretrievability and perception that nothing can be improved whatever happens; a direct correlation between an increase in unemployment and the

possibility of unrest; increased social demands; an increase in crime; and the acceptance of violence as the only solution to a problem.

He said that his department was tackling the problems as a matter of urgency.

In the 1985 Budget, R31-million was allocated to the department for the training of work figures and unemployed people of which R5-million was made available to development boards.

He said a vital element in creating or providing jobs was to remove or by-

pass red tape and to provide supportive services on an immediate and very practical day-to-day level.

In spite of the deepening recession and an increase in unemployment, South Africa was still experiencing a shortage of skilled manpower.

According to a survey conducted by the Department of Manpower in September 1984, nearly 42 000 vacancies were reported in the professional, semi-professional and technical fields, which amounted to a shortage of 8,4 percent.

From the beginning of this year until the end of July, the Department had placed more than 218 000 people in employment. However, it was essential that training efforts should be increased considerably for future years.

Dr Van der Merwe said his department had trained 548 000 workers in 1984 and in 1985 505 000 workers had benefited from training schemes.

SOUTH AFRICA

SURVIVAL STRATEGY CONFERENCE HELD

Johannesburg THE CITIZEN in English 3 Oct 85 p 11

[Article by Keith Abendroth]

[Text]

LEADERS of South African commerce, industry and agriculture put their heads together in a summit conference in Pretoria yesterday to map out a survival strategy for the Republic in the face of the ever tightening economic and political situation.

The unique meeting was called by the South African Agricultural Union together with leaders in industrial, commercial and economic fields primarily to discuss the mutual and conflicting concerns of the various sectors in planning for economic growth.

The president of the SAAU, Mr J A 'Kobus' Jooste said that political aims would have to come to grips with economic factors — because a prosperous community would in the critical coming months be irreplaceable and indispensable for realistic negotiations on the political future of the country.

Farmers, he said, were in an unwholesome situation which could largely be ascribed to a continued shrinking of their profit margin over the past decade.

It was vitally important, said Mr Jooste, that private enterprise, agriculture and the Government "do a few obvious things"

He expressed optimism for the economy's future.

"We must keep our heads and not become panicky — we must stick to our guns and not let go again. We must make it worthwhile for people to save," he said.

Mr Andre Hamersma, general manager of the Standard Bank Investment Corporation warned organised agriculture that it would, to a greater extent, have to solve its own problems in the future and rely less on the State.

"The farmers will have to change from 'producers' to businessmen," said Mr Hamersma.

They would have to become more market oriented and increasingly decide for themselves what

and how much to produce.

Clearly, said Mr Hamersma, the role of the State in the future economic dispensation would be much smaller than it had been in the past.

"Unavoidably, South Africa will move towards a more market orientated economy," he said.

Unhappily, the sins of the past would not disappear overnight and there would be teething problems on the way to such an economy.

Pretoria University's Professor P J Haasbroek said that South Africa would have to step up her growth rate — to win back international faith in her.

"Our international creditworthiness, which took so many years to build up, was lost overnight when the authorities lowered the boom on our creditors," he said.

To win back a degree of international faith, and to eliminate the unemployment problem — which was an important cause of the political unrest — the republic would have to step up her growth rate.

The aim will be to accelerate growth without stepping up imports, said Prof Haasbroek.

He predicted a massive increase in the years ahead in Black consumer demand — with 21 million Blacks estimated to be in the cities alone by the turn of the century.

"South Africa's hope does not lie in the direction of the First World, but rather in recognition of our Third World limitations — and the building of a development strategy that takes account of this," he said.

Among other speakers, the chief of Central Economic Advisory Services,

Mr J P Dreyer said that good progress was being made in implementing the measures planned in the White Papers on agricultural and industrial development.

Future steps should make a substantial contribution to the more productive application and utilisation of production factors.

But in the final instance the individual producer had to decide for himself what, when and where to produce, as well as the price of the commodity and which production methods and techniques would be the most profitable for him.

In the process, he said, aid given by the Government to farmers or consumers — in the states striving for market orientated prices — should not be achieved by price manipulation.

SOUTH AFRICA

GOVERNMENT CUTBACK TARGETS WITHIN REACH

Johannesburg THE CITIZEN in English 1 Oct 85 p 12

[Text]

JUST over 90 percent of Government departments' financial cutback targets, totalling R471-million for the current financial year, should be achieved according to projections made on progress so far, the chairman of the Commission for Administration, Dr Johan de Beer said yesterday.

It was made up of about R169-million on personnel expenditure cutbacks, at least R225-million on service bonus withdrawals, and some R35-million on a diverse grouping of savings measures, he said at a Press conference in Pretoria.

Education, with the emphasis on Black education, the Police and the Prisons Services had been the only departments excluded, on instruction from the Cabinet, from the savings campaign.

All the affected Departments, with the exception of a new adminis-

trative one and the Defence Force, had been able to meet the cutback requirements, which had originally been set at eight percent but had had to be reduced to a more realistic level for the time being, Dr De Beer said.

**Savings**

He emphasised the savings had been a "traumatic process" as the "fat" had already been cut out of the Public Service in previous austerity programmes.

This year was phase one of the project, and phase two would take place in the next financial year, from March 1986, although no specific plans had been made yet as these would depend on the economic climate and political factors, among others.

Those Departments that had not made the grade this year due to unavoidable circumstances would be called on to do so next year, Dr De Beer said.

Providing details of the cutbacks, he said the commission had identified three facets.

The first was a saving on personnel expenditure, with a target of 50 percent of vacancies in March this year to be frozen. Projections were for a figure of 44 percent, or 9 600 posts, would be reached by the end of the financial year.

**Target**

In money terms the target set had been R211-million, of which about R169-million, or some 80 percent, would be achieved.

Ten departments had exceeded this target, 11 had been "spot on," a further six had been "technically below, but by less than five percent," and only two had difficulties in meeting the requirements.

The first had been one of the new administrative departments created with the implementation of the new constitution, and the other was the Defence

Force, which had been burdened by extra duties imposed on it.

Dr De Beer emphasised that jobs frozen had been right through the spectrum of civil service posts, from almost the highest (Deputy Director-General level) to the lowest.

The second facet of the savings programme, a stop to service bonuses (13th cheques) had been "easier to achieve but no less traumatic".

The R225-million target would be reached and it might be exceeded slightly, depending on how many vacant posts were frozen by the end of the year.

The third facet, Dr De Beer said, had been a diverse group of savings measures, including a charge for formerly free transport provided for public servants, longer working hours, and a reduction in merit awards.

The target of R35-million for this would probably also be slightly exceeded. — Sapa.

SOUTH AFRICA

SPENDING POWER OF SOWETANS ASSESSED

Johannesburg SUNDAY TIMES (Business) in English 22 Sep 85 p 4

[Article by Amrit Manga]

[Text]

SOWETANS have disposable income of between R1,5-billion and R1,7-billion a year — but only 10% of it is spent in the townships.

African Bank managing director Moses Maubane says 20% of black disposable income is spent in townships nationwide.

Mr Maubane says: "We need to overhaul the entire black business infrastructure if the direction of purchasing power is to be reversed."

The estimate of Sowetan earnings is based on a population of nearly 1,5-million people and 106 000 households, each with an average earning a worker of R500 a month.

### Market share

"Black business's future share of the market will be determined by the extent to which it diversifies. If it does not change, it will lose the market."

The increase in market share from 1% in 1977 to the current 10% is largely attributed to limited diversification. Until 1976 black businesses were limited to about 66 classes of retailing.

Soweto is served by about 20 cafes, 46 dry-cleaners, sev-

en drapers, 19 hardware dealers, 26 filling stations, 274 grocers, 152 general dealers and 163 greengrocers. More than 2 500 business licences have been issued in Soweto.

Mr Maubane says franchises, services, manufacturing and export-related businesses are untapped by blacks.

"South Africa has many products with a ready market abroad. Handicrafts produced by black people are an example.

### Handicrafts

"But black people are not the ones making profits from these products.

"Existing retailers can capture a significant share of the billion-rand market by adopting modern marketing techniques."

Metro purchasing director Mark Abranowitz says township retailers tend to price themselves out of the market.

Mr Abranowitz says: "Although all discounts are passed on to them, their goods are still overpriced.

"Before any change in buying patterns can be achieved, black retailers must adopt competitive methods."

### Reason

Mr Maubane says the inadequacy of black retailers to serve their communities is only part of the problem.

"The fact that their prices are higher than those of competitors in town is a matter of economics.

"The black businessman will have to diversify into new areas if he is to claim a bigger share of the market."

An undeveloped business infrastructure poses problems for boycotters who depend on black shops to supply their needs.

Mr Maubane says: "It is doubtful that black businesses can compete with white retailers for the consumer's purse under present conditions."

Some sectors have made significant gains — mainly because of consumer boycotts of white enterprises.

The informal sector has mushroomed in some areas of the Eastern Cape. Street vendors have increased in numbers and cash-and-carry outlets on the boundaries of townships have made considerable gains.

Cash-and-carry businesses have profited because white wholesalers are reluctant to enter townships.

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SOUTH AFRICA

CISKEI'S SEBE CRITICIZES UDF CIVIL SERVANTS

MB070936 Johannesburg SAPA in English 1950 GMT 6 Oct 85

[Text] Swelitsha, 6 Oct (SAPA)--President Lennox Sebe of Ciskei has lashed out at civil servants who are members of the United Democratic Front [UDF]. Speaking at a rally at Zwelitsha at the weekend, he called them the offspring of serpents who should "voetsak" [get lost] and resign from their clerical jobs.

He also criticised businessmen who closed their shops during funerals of unrest victims and asked why they did not close their businesses during the funerals of cabinet ministers, chiefs, headmen and mayors. "If businessmen close for the funerals of delinquents who have been prevented from carrying out atrocities, they are against the government."

Mr Sebe also accused some teachers of fuelling school unrest. He said a teacher in a rural village had been arrested for confiscating and destroying membership cards of the ruling Ciskei National Independence Party.

He appealed to the residents of townships and villages to keep order by patrolling their areas and to report evildoers to the authorities. Police would only be sent to unrest areas where there were vigilantes. The vigilantes would be supplied with walkie-talkie radios.

President Sebe said men who refused to assist in quelling unrest should be evicted from their homes and vowed that evildoers would be hunted like wild animals.

Schools that had been burnt down would not be rebuilt, but any headman's house that had burnt down would be rebuilt by the government.

Mr Sebe appealed to parents to discipline their children and attacked school committees that did not report teachers who did not teach or let pupils leave their classes.

He lashed out at grown men who allowed themselves to be intimidated by boys. Men who succumbed to threats by boys should either go back to the circumcision school or leave Ciskei, he said.

CSO: 3400/115

SOUTH AFRICA

BUSINESSES PLAN USE OF CIM

Johannesburg ENGINEERING WEEK (High-Tech) in English 12 Sep 85 pp 12-15

[Text]

CIM is a long-term strategy and, as long as companies understand what they are trying to achieve, they can look at intermediate improvements in their manufacturing environment, such as MRP or JIT.

However, CIM is a strategy to be aimed for and cannot be achieved immediately. But, then, neither can JIT or any other information system you care to name, says Pierre Biebuyck of computer consultants, Comcon.

Implementing systems takes time and it is important for a company to evolve a strategy and make sure what it is doing now is within that strategy and contributes towards it.

"It is a whole strategy of how you are going to use information technology and automation in your plant, taking a five-to 10-year overview," said Biebuyck.

"At least then you know everyone in the company is looking towards a common goal."

But CIM is still a bit of a mystery to most SA manufacturing firms, which, even if they do understand the concepts, have no knowledge of its applicability or relevance to their environment.

"Unless you go overseas, there is very little to look at, and very few examples to be followed. In South Africa, there is still a substantial degree of pioneering to be done in CIM," said Guy Vellacott, head of Comcon Industrial, a recently-formed division of Comcon.

### Introducing systems

The situation in South African manufacturing is similar to the financial industry 10 years ago.

CIM in South Africa is merely at the beginning of its life cycle.

More than 10 years ago, banks internationally, and more recently in South Africa, began introducing good computerised information systems.

They decided that information systems were strategically important and they weren't just another way of processing data faster or of handling the accounts. These institutions felt that good information systems gave them a quantum leap competitive advantage over the competition.

Then the situation changed, and large financial institutions simply could not survive the 1980s unless they started using these systems as a strategic resource.

"If you look at those banks which made heavy commitments to information technology, they have gained ground at the expense of their competitors who haven't done that.

"In South Africa, you can see very quickly which banks have gained in profitability and market share in the past few years and the correlation between that and which banks have spent a lot of money in information technology," said Biebuyck.

"That is the scenario the financial institutions have gone through. Now it is up to the manufacturing sector to see information systems, or rather information technology, in the same light."

There have been isolated islands of companies which have implemented automation of one sort or another but, says Vellacott, there have been very few manufacturing companies which have looked at their future and said that information technology, in its widest sense, is strate-



gically important for their kind of business.

"We believe that climate is changing," he said.

The situation is different because of a change in the monopolistic structure of the country's economy and increasing competition both locally and from abroad.

"All the shelters are breaking down and, for the manufacturing industry, efficiencies through computerisation and automation are becoming a matter of survival as much as good business sense," said Biebuyck.

"Protectionism is part of the reason why South African industry has lagged behind the rest of the world. However, even internationally, the manufacturing sector has lagged behind the financial institutions.

"Another local problem has been the cost of labour. Previously, the manufacturer could throw labour at whatever problem he had, but this is ceasing to be the case."

The cost of labour is constantly increasing, which places a much higher premium on productivity. But the only way to get higher productivity is through increased automation and the increased use of automation technology.

"For these reasons, we believe South Africa is on the threshold of an enormous expansion in the use of information technology in industry. This includes automation, robotics, shopfloor data collection, MRP systems, and integrated NC machines.

"When you start to add all these things together, you are beginning to talk about CIM. However, we believe true CIM is a long way off.

"Nevertheless, that is the direction we should be approaching."

## **A different industry**

Comcon holds the view that numerous different skills have to be brought to bear in the manufacturing sector on what is essentially a different industry to the financial. A manufacturing situation is normally very different because it does not have the systems prior to computerisation that banks have.

"The typical manufacturing operation does not have a system. The foreman, when he comes on shift, will base his decision on what work to do on a number of factors, but primarily based on his experience," said Vellacott.

"However, a good information system will tell him exactly what to do and this will be based on criteria such as what is best for the overall optimisation of the factory."

These demands may be different to the gut feeling of the foreman. Therefore, says Comcon, a retraining exercise is needed.

"With CIM, what you are trying to get are the benefits of long production runs with short setup times and downtimes between jobs — without any of the disadvantages."

CSO: 3400/185

SOUTH AFRICA

CIM MAY 'HELP' IN STRUGGLE AGAINST EAST! .

Johannesburg ENGINEERING WEEK (High-Tech) in English 12 Sep 85 pp 13, 15

[Text]

Computer integrated manufacturing (CIM) is a phrase on everybody's lips these days, and no wonder — it is being hailed in the USA as the key tool which will allow America to compete successfully against Japan.

We, in South Africa, with our serious productivity problems at all levels, should also be taking a hard look at it.

CIM is a way of looking at your manufacturing business from an information perspective, rather than a product perspective.

Instead of saying that we will make a particular product because that is what we are good at, we ask instead what we can make that people will buy, and what we need to do to make and sell that product at a profit.

In answering these questions, we look at design, manufacturing processes, quality testing, and planning and control systems.

By linking these aspects via a computerised information system, we find that we can gain a far greater degree of control over the business.

Imagine a wheel with the computer at the hub. Around the circumference are six key areas — computer aided design (CAD), robotics, computer aided manufacturing (CAM), automated materials handling, manufacturing planning and control systems, and group technology.

Each area is, or performs, a process on which the next depends, and information from each is needed to gain control of the business. Thus, while it is possible (and even desirable) to automate each area as fast as possible, it is also vital to link the areas to the central information system.

The need for this becomes more apparent when we look at the Japanese factories which have been set up to take advantage of the Just In Time (JIT) manufacturing principles. These assume that the most efficient way to make a product is for it to spend as little time as possible in the factory.

The Japanese have cut the time needed to set up their machine tools from hours to minutes, thus enabling them to switch from making one product to another on the same line very quickly and simply.

Yamazaki, a large Japanese machine tool maker, found that by switching to flexible manufacturing systems (FMS) at a cost of some US \$18-million, it saved nearly \$7-million in stock and labour costs in the first two years.

In addition, the number of machines used to make their products dropped from 68 to 18, the staff was cut from 215 to 12, the floor space dropped from 103 000 square feet to 30 000, and the average time to process a work piece dropped from 35 days to 1.5 on one line, and from 60 days to three on another line.

There are four stages in the move towards CIM. These are:

- Initiation;
- Promulgation and co-ordination;
- Control and integration;
- Maturity and refinement.

Bill Sandras, a Hewlett-Packard manufacturing consultant, advocates starting with a single small production line set up on flexible manufacturing principles. This should be monitored very closely and measured, so that the benefits can be verified.

Among the promises that CIM makes are that quality will be built into the product at 20% of the product cost, and that it will build in the manufacturing techniques and processes one adopts. One should also save at least 10% on labour costs, 55% on materials and 35% on overheads.

In addition, customers will be happier with performance and responsiveness, and use of company assets will increase considerably.

At Hewlett-Packard (1984 sales were \$6,4-billion), we have been using CIM techniques to improve our own use of assets. In the past five years, we have doubled our investment in computer hardware alone to \$180-million at list prices.

Of course, there has also been a lot of money and work in research, training, education and management which has added to the overall bill. But the results have been staggering:

- Stock holdings have dropped from 20% of sales to 15%;
- Creditors' repayments have improved from 62 days to 52;
- The cost of processing orders has dropped from two cents to 0,6 cents;
- The time taken to design new products, for example a new microprocessor, dropped from two years to two months and now has 80% fewer parts and 60% less labour, but the quality has improved considerably;
- We are one third of our way towards our corporate goal of cutting field failures of our products to one-tenth of what they were;
- Our sales revenue/employee has increased by 43%.

Conservatively, we have recovered almost three times our original investment through savings, better quality and therefore fewer repairs, and through better access to information, so that we can respond faster to some very volatile markets.

One of the biggest benefits has been the phenomenal increase in productivity. At our Japanese plant, productivity measured in terms of revenue/employee has increased by 91%.

Our manufacturing costs as a percentage of revenue have dropped by 42%, and we have cut stocks by 64% without affecting our ability to supply goods on time.

All this has enabled us to increase our market share by 214% and as a result, our profitability has risen by 177%.

We face many different problems in South Africa, not the least of them being low (and declining) productivity. Martin Bailey, of the Wits Materials Handling Research Unit, suggests this is because we have neglected these problems, but in fairness, only some of them are external to our business.

Among them are:

- Narrowing the wage gap without an increase in productivity;
- Political pressure;
- Many state-controlled bodies and monopolies;
- Small population and therefore small production volumes;
- Lack of technical expertise;
- Too few exports;
- Bad management techniques;
- Too few entrepreneurs and no infrastructure to support them;
- An ostrich approach to modern techniques.

Bailey also points out that South Africa has a proliferation of products, which means that any production run is necessarily even shorter than our small population suggests.

In a study, Bailey found there are 17 motor car makers producing 255 configurations of passenger vehicle.

Many have said that South Africa has too much choice, but they are assuming

the old, conventional manufacturing methods where only high volumes enable us to lower the unit cost and improve productivity.

Unless we change to flexible manufacturing systems, incorporate just in time techniques, and go for computer integrated manufacturing, their criticism will continue to be valid and South Africa will steadily become less and less competitive on world markets.

The economic criteria for judging a move to CIM needs a different perspective as well. It is fast becoming a question not of "can we afford it?", but "can we afford not to?".

CSO: 3400/185

SOUTH AFRICA

SMALL BUSINESSES HOLDING THEIR OWN

Johannesburg THE CITIZEN in English 4 Oct 85 p 11

[Text]

Despite the recession, most small businesses assisted by the Small Business Development Corporation are holding their own, and some are even thriving.

The managing director of the SBDC, Dr Ben Vosloo, says small business development is increasingly being seen as the key to economic prosperity, in even the most developed nations.

"This is the age of the small business," he said.

"It plays an increasing role in creating new job opportunities, maintaining a free market economy, generating income and spreading prosperity more widely, providing wider choices in the market place, and enhancing political and social stability."

The SBDC says there has been a "tremendous increase" in the number of people applying for loans to finance infant enterprises in the past six months, but there is a danger that the small business sector's dynamism will be strangled by a shortage of development, funds, and a mass of bureaucratic regulations.

To coincide with a drive for new financial resources, the SBDC is also making representations to the President's Council, showing the inhibiting effects of petty regulations on the development of small businesses in urban areas.

In recessionary times, when unemployment is high, small businesses assume even greater importance to the economy. SBDC statistics show that the cost of creating one job in a large, sophisticated enterprise is between R99 000 and R120 000, while the cost to small ventures often shrinks as low as R120, seldom rising above R10 000.

Included in the SBDC's wide range of assistance schemes, is one called the Comprehensive Assistance Program, specially designed for infant enterprises. The scheme offers loans of up to R30 000,

coupled with ongoing guidance. Some small businesses which have made use of this scheme have shown impressive growth in the past few years, despite the condition of the economy. The SBDC has provided the following case histories:

● Mr James Mbetse, trading as MB Anodising, who purchased a small anodising plant in 1982, and developed it into a prosperous business anodising aluminium components for the electronics industry. Although having no formal education, hard work and perseverance led to Mr Mbetse's success.

● Mr Passmore Mdluli, trading as Passmore Panel Beaters, who moved his small backyard business to the SBDC's Dobsonville Industrial Park in 1982, and expanded to such an extent that his staff increased from two to about 30. He told The Citizen that half a dozen business acquaintances were in the process of approaching the SBDC for industrial park premises.

● Mr Richard Hlungwa,

trading as George Motors, who moved his backyard repair business to the Emdeni Industrial Park in Soweto three years ago, and since then has achieved an ever increasing turnover.

● Mr M A Makwala, trading as Alma Fashions, who, after many years of operating at home, moved to the Orlando Industrial Park, and set up a textile processing plant which has secured contracts to supply clothing and other textile products.

Besides the SBDC's Comprehensive Assistance Program, other schemes include the General Financing Program for existing small businesses in the formal sector (loans of up to R300 000), the Mini-Loan scheme for the informal or semi-formal infant enterprise (loans of up to R2 000), the Suppliers' Guarantee scheme whereby the SBDC guarantees payment to suppliers of raw materials, and the Small Business Aid Fund which provides bridging finance of up to R50 000.

4 November 1985

## SOUTH AFRICA

## VARIED REACTION TO DISINVESTMENT CALL REVIEWED

Johannesburg SUNDAY TIMES (Business) in English 29 Sep 85 p 5

[Article by David Carte]

[Text]

**FOREIGN** companies, under pressure to disinvest from SA, are lying low, waiting for the fuss to die down and the rand to recover.

The Economist (Britain) and Business Week (America) give prominent coverage this week to companies leaving SA.

Although hardly any foreign corporations have pulled out of SA in high moral dudgeon taking tens of millions of rands with them, both respected publications give the impression of large-scale withdrawal.

In fact the only foreign company that has done so, ostensibly for political reasons, has been Apple Computer and that may have been a public relations gesture.

### Cover story

Business Week has made a cover story of the matter. The Economist provides a list of 34 companies that have left "in the past year or so" alongside a report about declining foreign confidence.

Several of the more noteworthy departures from SA occurred well before the present political upheaval started. The Economist's list includes withdrawals as ancient as Associated British Foods' pull-out from Premier and Jardine Matheson's sale of Rannies.

No mention is made of the extremely generous prices paid by predatory South African companies and institutions. Rannies, Premier and Amalgamated Bottling Industries were sold at prices the vendors could not resist.

### Best reason

Business Week mentions 17 US companies that have quit. One of the mega-corporations listed is Coca-Cola, which is still very much of a presence in SA. Coca-Cola has sold only part of Amalgamated Beverage Industries, which is a small section of its operations in SA.

It sold for the best commercial reason — a generous offer from SA Breweries.

Also in Business Week's list is Ford, which merged its operations with Anglo's Sigma, reduced its stake to 40% and surrendered management.

But, like most of the companies mentioned in both magazines, Ford did not take much money out of SA. It has a smaller part of a bigger operation. Like Barclays it can tell its critics, it has no control.

Ford SA has repeatedly stated that Fords will be on the roads here in another 60 years.

## Smallest

General Foods is also on the Business Week list, suggesting withdrawal by a mega-corporation. But General Foods sold nothing more than its 20% stake in salt and seasoning associate, Cerebos, which has to be one of General Foods' smallest interests anywhere in the world.

Pan American World Airways is another well-known US corporation on both lists. It was knocked out of the SA market by nothing more than a plummeting rand, which made it too expensive for South Africans to fly, and its own parlous financial position.

International Harvester sold its Maritzburg truck operation because the US parent was desperately ill.

Barclays and Standard banks are on the Economist's list even though neither took a cent out of SA. Both declined to follow rights issues in order to localise control of the banks and to tie up with other SA institutions.

Although both can now tell critical shareholders they have no control over their SA

operations, both have the largest single stakes and effective control. Both have reduced interests in much-enlarged operations.

## Doubtful

Apart from these examples, there is hardly one heavyweight corporation in the lists. The lists are thus a doubtful guide to foreign sentiment about SA — but there is no doubt many companies would have left if the rand had not plunged.

Another near certainty is that some will still go if the rand does recover above 60 US cents. In the past, foreign concern about SA has tended to evaporate a few months after the townships simmered down and profits started rolling. After the unrest and the debt standstill, the damage this time will be longer lasting.

Still, declining unrest in the townships would do much to relieve pressure to disinvest. So would more acute political and economic problems in the West.

## Tarnished

The "hassle factor", in terms of which a tiny foreign interest for a large US or UK multinational becomes a disproportionately large domestic problem, is one incentive to go. Short-term thinkers may also withdraw because of a tarnished long-term economic outlook for SA.

But the biggest, most businesslike and far-sighted foreign corporations are expected to take the line of companies, such as NCR and Hoechst — that they are in every type of political system and have survived coups, revolutions, many elected and unelected governments.

The attraction of being in SA is the possibility that it will become the economic hub of Southern Africa with a growing mass market as more and more people elevate themselves from the third world to the first.

The final reason SA remains attractive is that gold makes it perform contra-cyclically to other economies.

It is a good place to hedge one's bets, particularly while the world debt problem is ticking away like a time bomb.



SOUTH AFRICA

BAREND: ANSWER TO DEBT 'MORE EXPORTS'

Johannesburg THE CITIZEN in English 1 Oct 85 p 4

[Text]

SOUTH Africa's ability to meet its international financial commitments in the immediate future would largely depend on it being able to continue expanding its exports, the Minister of Finance, Mr Barend du Plessis, told the International Monetary Fund meeting in Seoul, South Korea, yesterday.

As a country with a firm belief in the virtues of the free market system, South Africa unreservedly endorsed the call for resistance to protectionist measures, without which prospects for sustainable recovery in the world economy would be undermined and the management of the external position of heavily indebted countries would be severely complicated.

**Open trading**

"I particularly welcome

the firm determination expressed by members of the interim committee that their governments will preserve an open trading system in which all countries will have effective access to world markets," Mr du Plessis said.

A copy of his prepared speech was released in Pretoria.

The Minister said it was clear the world economic situation had improved during the past year in certain important respects, but that clouds were now gathering on the horizon in spite of this.

**Weak economy**

"Primary commodity prices have recently been declining and, coupled with the slowing down of economic activity in the United States, the export earnings of the developing countries and hence their growth prospects are weakening.

"Unless there is accel-

erated economic expansion to the other major industrial countries, overall industrial growth might well slow down in the year ahead — at a time when unemployment in developing countries is a serious problem and threat to social stability.

"Add to this the growing calls for protectionism and the reluctance of banks to extend new loans in Third World countries, and we have the makings of a new international debt crisis," Mr Du Plessis said.

Governors of the Fund and the World Bank should therefore not be deluded that the international debt problems were being resolved satisfactorily.

**Concern**

This was a matter of concern not only for the debtor countries themselves, but also for the creditor banks and the monetary authorities of industrial countries.

However, the events that had led up to the forced declaration of a standstill period for the repayment of foreign debt were in many respects "very different" from those that had created debt repayment problems for many other countries.

South Africa had for some time been applying relatively strict monetary and fiscal policy measures, resulting in sharply decreased gross domestic expenditure, a decline in imports and enhanced exports with the current account surplus equalling some four percent of the gross domestic product.

The Republic had moreover not experienced any difficulty in meeting both its interest and capital redemption commitments on long-term loans, and neither had the Government nor public sector experienced an outflow of short-term capital. — Sapa.

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SOUTH AFRICA

RESERVE BANK SEEKS FOREIGN DEBTS INFORMATION

Johannesburg THE CITIZEN in English 8 Oct 85 p 15

[Text]

THE Reserve Bank yesterday appealed to the public of South Africa, SWA and the independent homelands to submit information on their foreign liabilities to the bank by October 25.

In a statement the bank said the information would enable it to assess the need for planning South Africa's foreign debt repayment programme.

In terms of the Exchange Control Regulations the relevant forms had to be completed by all residents who had foreign liabilities as at August 31 this year.

Copies of the forms are available at all branches of the commercial banks and at the Government offices of the independent national states.

In cases where the Reserve Bank is in possession of addresses of persons or bodies with foreign liabilities

copies of the form will be sent directly to them for completion.

"The onus to obtain copies of the form, however, remains on the person or body liable for the completion thereof and all forms duly completed must be returned to the economics department of the South African Reserve Bank, Pretoria, not later than October 25 1985," the statement says.

"The form contains clear instructions as to its completion, but any enquiries relating thereto may be directed to a respondent's own banker or to the Reserve Bank's economics department telephone (012) 21-2522 ext 311."

All information supplied would be regarded as strictly confidential.

"Failure to supply the required information will constitute an offence and could affect the repayment of the foreign debt concerned". — Sapa.

CSO: 3400/185

SOUTH AFRICA

RESERVE BANK ASSETS-LIABILITIES REPORTED

Pretoria GOVERNMENT GAZETTE in English 13 Sep 85 p 33

[Text]

NOTICE 570 OF 1985

SOUTH AFRICAN RESERVE BANK

Statement of Assets and Liabilities on the 31st day of August 1985

<i>Liabilities</i>		<i>Assets</i>	
	R		R
Capital .....	2 000 000,00	Gold .....	4 804 940 511,15
Reserve Fund .....	42 424 241,17	Foreign:	
Notes in circulation .....	3 698 301 162,00	Bills .....	—
Deposits:		Investments .....	102 100 759,75
Government .....	1 201 073 397,72	Other assets .....	762 020 979,33
Provincial administrations .....	35 476 130,78	Total gold and foreign assets .....	5 669 062 250,23
Bankers .....	992 385 847,21	Domestic:	
Other .....	1 089 307 239,05	Bills discounted .....	1 671 600 000,00
Other liabilities .....	5 966 637 747,22	Loans and Advances:	
		Government .....	—
		Other .....	977 417 756,74
		Securities:	
		Government .....	51 304 061,82
		Other .....	557 758 185,75
		Other assets .....	4 100 463 510,61
	<u>R13 027 605 765,15</u>		<u>R13 027 605 765,15</u>

Ratio of gold reserve to liabilities to the public less foreign assets 63,9 per cent.

Pretoria, 5 September 1985.

B. P. GROENEWALD, General Manager.

CSO: 3400/185

SOUTH AFRICA

EXCHEQUER ACCOUNT REPORTED AS OF 31 AUGUST

Pretoria GOVERNMENT GAZETTE in English/Afrikaans 13 Sep 85 pp 15-17

[Text]

No. 2078

13 September 1985

Statement of Receipts into and Transfers from the Exchequer Account for the period 1 April 1985 to 31 August 1985.

Treasury, Pretoria.

RECEIPTS-

Head of Revenue	Inkomenshoof
Exchequer Balance, 31 March 1985.....	Skatkissaldo, 31 Maart 1985 .....
Exchequer Balance, 31 July 1985 .....	Skatkissaldo, 31 Julie 1985 .....
<i>State Revenue Account</i>	<i>Staatinkomster rekening</i>
Inland Revenue .....	Binnelandse Inkomste .....
Customs and Excise .....	Douane en Akysne .....
	R
National Road Fund .....	Nasionale Padfonds .....
State Oil Fund .....	Staatsoliefonds .....
S.A. Development Trust Fund .....	S.A. Ontwikkelingstrustfonds .....
Sorghum Beer Research Fund .....	Fonds vir Sorghumbiernavorsing .....
S.W.A. Territorial Revenue Fund .....	S.W.A. Gebiedsinkomsterfonds .....
	R
	R
<i>Other Receipts</i>	<i>Ander Ontvangste</i>
Treasury Bills: Internal .....	Skatkissbiljens: Binnelands .....
Internal Stock, Bonds and Loans Raised:	Binnelandse Effekte, Obligasies en Lenings
Indefinite Period Treasury Bonds .....	Openeem:
Indefinite Period National Defence Bonds .....	Onbepaalde Termyn Tesourie-obligasies .....
	Onbepaalde Termyn Nasionale Verdedigingsobligasies .....
Internal Registered Stock:	Binnelandse Geregistreerde Effekte:
15.5%, 1990 .....	15.5%, 1990 .....
16%, 1986 .....	16%, 1986 .....
15 %, 1988 .....	15%, 1988 .....
14.5%, 2006 .....	14.5%, 2006 .....
15%, 1994 .....	15%, 1994 .....
14%, 1992 .....	14%, 1992 .....
14.5%, 1987 .....	14.5%, 1987 .....
14%, 1987 .....	14%, 1987 .....

Foreign Loans and Credits raised:	Buitelandse Lenings en Kredite opgeneem:
1978.....	1978.....
1985/91.....	1985/91.....
1981/86.....	1981/86.....
Surrenders, Revenue Services 1984/85 .....	Terugsorrings, Inkomste dienste 1984/85 .....
	R
*Less Discount RSA Stocks .....	*Min Diskonto RSA Effekte .....
	R
	R
<i>Appropriation Account: House of Assembly</i>	<i>Begrotingsrekening: Volksraad</i>
Internal Revenue.....	Binnelandse Inkomste.....
Transfer from State Revenue Account .....	Oorplasing vanaf Staatsinkomstrekening.....
	R
<i>Appropriation Account: House of Representatives</i>	<i>Begrotingsrekening: Raad van Vertewoerdigers</i>
Internal Revenue.....	Binnelandse Inkomste.....
Transfer from State Revenue Account .....	Oorplasing vanaf Staatsinkomstrekening.....
	R
<i>Appropriation Account: House of Delegates</i>	<i>Begrotingsrekening: Raad van Afgevaardigdes</i>
Internal Revenue.....	Binnelandse Inkomste.....
Transfer from State Revenue Account .....	Oorplasing vanaf Staatsinkomstrekening.....
	R
	R
Total (including Opening Balance).....	Totaal (insluitende Aanvangssaldo).....R

No. 2078

13 September 1985

Staat van Ontvangste in en Oordragte uit die Skatkis-rekening vir die tydperk 1 April 1985 tot 31 Augustus 1985.  
Tessourie, Pretoria.

**ONTVANGSTE**

Month of August Maand Augustus		Total 1 April to 31 August Totaal 1 April tot 31 Augustus	
1985	1984	1985	1984
R	R	R	R
—	—	533 229 222	—
174 786 628	—	—	—
3 030 869 475	2 372 312 136	10 958 405 250	7 887 297 388
193 639 875	253 518 241	507 171 978	666 508 313
3 224 509 350	2 625 830 377	11 465 577 228	8 553 805 701
—	15 129 740	3 101 131	72 413 041
—	22 429 604	2 640 274	126 629 430
2 737 255	1 798 000	6 455 255	8 336 005
—	—	1 107	—
—	—	150	2 040
2 737 255	39 357 344	12 197 917	207 380 516
3 227 246 605	2 665 187 721	11 457 775 145	8 761 186 217

1 343 625 000	—	6 720 836 000	—
7 594 600	—	31 775 600	—
796 800	—	5 457 300	—
—	—	1 437 000 000	—
—	—	(88 475 000)*	—
—	—	500 000 000	—
—	—	(16 822 000)*	—
—	—	350 000 000	—
—	—	(27 800 000)*	—
—	—	168 000 000	—
—	—	(20 579 000)*	—
150 500 000	—	450 500 000	—
(10 069 000)*	—	(27 278 000)*	—
—	—	500 000 000	—
—	—	(27 966 000)*	—
—	—	50 000 000	—
—	—	(830 000)*	—
30 000 000	—	180 000 000	—
(1 296 000)*	—	(4 114 000)*	—
—	—	74 266 617	—
—	—	146 341 463	—
1 173 004	—	7 430 216	—
14 048 248	—	20 161 145	—
1 547 737 652	—	10 641 758 341	—
11 365 000	—	213 864 000	—
1 536 372 652	—	10 427 894 341	—
4 763 619 257	—	21 883 669 486	—
6 837 198	—	7 979 280	—
151 157 000	—	1 069 378 000	—
157 994 198	—	1 077 357 280	—
1 749	—	15 910	—
117 000 000	—	517 000 000	—
117 001 749	—	517 015 910	—
462 156	—	1 123 601	—
47 060 000	—	220 360 000	—
47 522 156	—	221 483 601	—
5 086 137 360	—	23 701 526 277	—
5 260 923 988	—	24 234 755 499	—

## ISSUES—UITBETALINGS

Service	Diensie	Estimates Begroting	Month of August Maand Augustus		Total 1 April to 31 August Totaal 1 April tot 31 Augustus	
		1985/86	1985	1984	1985	1984
State Revenue Account Votas	Staatsinkomsterrekening Begrotingsposte	R	R	R	R	R
1. State President.....	Staatspresident.....	10 908 000	868 000	965 416	4 368 000	4 407 080
Statutory Amount.....	Statutêre Bedrag.....	266 000	22 170	13 083	110 850	65 415
2. Parliament.....	Parlement.....	19 736 000	1 760 000	1 049 000	8 117 000	4 754 000
Statutory Amount.....	Statutêre Bedrag.....	12 036 000	880 000	547 000	4 872 000	2 737 000
3. Transport.....	Vervoer.....	503 340 000	42 168 000	26 333 000	196 304 000	145 566 000
4. Constitutional Development and Planning ...	Staatskundige Ontwikkeling en Beplanning ..	5 350 229 000	445 508 000	378 637 000	2 317 660 000	1 943 198 000
5. Foreign Affairs.....	Buitelandse Sake.....	1 177 616 000	90 000 000	40 050 000	465 800 000	198 250 000
Statutory Amount.....	Statutêre Bedrag.....	700 000	57 000	10 040 000	283 000	50 200 000
6. Home Affairs.....	Binnelandse Sake.....	46 174 000	4 608 000	90 911 768	20 054 100	336 859 619
7. Commission for Administration .....	Kommissie vir Administrasie .....	63 702 000	1 100 000	8 373 000	54 431 000	39 411 000
8. Improvement of Conditions of Service.....	Verbetering van Diensvoorwaardes .....	235 000 000	—	—	3 261 720	—
9. National Education .....	Nasionale Opvoeding.....	107 336 000	8 907 000	68 500 000	42 291 000	488 900 000
10. Police.....	Polisie.....	954 709 000	76 000 000	65 000 000	437 000 000	347 300 000
11. Public Works and Land Affairs .....	Openbare Werke en Grondsake .....	1 119 001 000	80 000 000	138 000 000	420 000 000	465 000 000
12. National Health and Population Devel- opment.....	Nasionale Gesondheid en Bevolkingsontwik- keling.....	1 336 416 000	103 000 000	145 000 000	575 730 000	730 000 000
Statutory Amount.....	Statutêre Bedrag.....	302 000	17 000	21 000	85 000	79 400
13. Administration: House of Assembly .....	Administrasie: Volksraad.....	387 849 000	—	—	—	—
Statutory Amount.....	Statutêre Bedrag.....	1 925 932 000	151 157 000	—	1 069 378 000	—
14. Co-operation and Development .....	Samewerking en Ontwikkeling .....	2 159 657 000	154 372 000	92 000 000	796 298 800	479 000 000
Statutory Amount.....	Statutêre Bedrag.....	276 851 000	23 070 000	18 000 000	115 350 000	151 000 000
15. Education and Training .....	Onderwys en Opleiding.....	917 486 000	73 000 000	42 000 000	365 000 000	291 000 000
16. Defence.....	Weermag.....	4 274 108 000	329 000 000	316 000 000	1 865 000 000	1 674 300 000
17. Manpower.....	Mannekrag.....	127 973 000	7 000 000	6 700 000	38 400 000	34 507 000
18. Trade and Industry .....	Handel en Nywerheid.....	954 137 000	60 000 000	40 000 000	340 000 000	278 760 000
19. Justice.....	Justisie.....	177 075 000	13 500 000	10 000 000	70 000 000	53 500 000
Statutory Amount.....	Statutêre Bedrag.....	9 379 000	780 000	500 000	3 840 000	4 423 000
20. Prisons.....	Gevangenis.....	358 798 000	27 227 000	27 366 000	159 341 000	152 711 000
21. Agricultural Economics and Marketing .....	Landbou-ekonomie en -bemaking .....	578 959 000	73 600 000	113 000 000	373 600 000	380 700 000
22. Water Affairs.....	Waterwese.....	248 030 000	24 200 000	—	107 400 000	—
23. Mineral and Energy Affairs.....	Mineraal- en Energiesake.....	627 553 000	62 700 000	76 980 000	321 633 000	217 480 000
24. Finance.....	Finansies.....	993 162 000	76 600 000	70 000 000	381 350 000	347 000 000
Statutory Amount.....	Statutêre Bedrag.....	5 093 577 000	365 412 000	274 089 000	2 207 303 000	1 761 502 000
		(615 000 000)*	(11 365 000)*	(68 114 000)*	(213 864 000)*	(283 633 000)*
25. Audit.....	Oudit.....	11 986 000	999 000	849 000	4 995 000	4 529 000
26. Environment Affairs.....	Omgewingsake.....	122 928 000	9 700 000	32 700 000	51 700 000	163 800 000
27. Administration: House of Representatives ..	Administrasie: Raad van Verteenwoordigers ..	261 770 000	—	—	—	—
Statutory Amount.....	Statutêre Bedrag.....	1 070 107 000	117 000 000	—	517 000 000	—
28. Administration: House of Delegates.....	Administrasie: Raad van Afgevaardigdes .....	108 029 000	—	—	—	—
Statutory Amount.....	Statutêre Bedrag.....	452 164 000	47 060 000	—	220 360 000	—
		R	32 074 981 000	2 471 272 170	2 093 624 267	13 547 318 470
*Less Discount R.S.A. Stocks.....	*Min Diskont R.S.A. Effekte .....		615 000 000	11 365 000	68 114 000	213 864 000
		R	31 459 981 000	2 459 907 170	2 025 510 267	13 333 454 470
Standing Appropriations	Staannde Toewysings					
National Road Fund.....	Nasionale Padfonds.....	—	—	25 129 740	3 101 131	72 413 041
State Oil Fund.....	Staatsoliefonds.....	—	—	22 429 604	2 640 274	126 629 430
S.A. Development Trust Fund .....	S.A. Ontwikkelingstrustfonds .....	20 500 000	2 737 255	1 798 000	6 455 255	8 336 005
Sorghum Beer Research Fund.....	Fonds vir Sorghumbiernavorsing .....	1 800 000	—	—	1 107	—
S.W.A. Territorial Revenue Fund .....	S.W.A. Gebiedsinkomstefonds .....	1 000	—	—	150	2 040
		R	22 301 000	2 737 255	49 357 344	12 197 917
		R	31 482 282 000	2 462 644 425	2 074 867 611	13 345 652 387
						10 874 687 030

Other Issues	Ander Uitbetalings					
Treasury Bills repaid: Internal.....	Terugbetaling van Skatkisbiljet: Binnelands	—	1 994 007 000	—	7 689 119 000	—
Tax Redemption Certificates repaid.....	Belastingdelingsertifikate gedolg.....	—	126	—	147	—
Loan Levy repaid.....	Leningsheffing gedolg.....	—	1 056 604	—	5 514 085	—
Currency Subscription, I.B.R.D.....	Betaalmiddele Bydrae, I.B.R.D.....	—	—	—	14 876 784	—
Currency Subscription, I.D.A.....	Betaalmiddele Bydrae, I.D.A.....	—	288 000	—	371 000	—
I.M.F.: Valuation Adjustment.....	I.M.F.: Valuta Aanpassing.....	—	—	—	1 294	—
Internal Stock, Bonds and Loans Redeemed:	Binnelandse Effekte, Obligasies en Lenings					
8% National Defence Bonds.....	Gedolg:	—	5 000	—	969 250	—
7% Treasury Bonds.....	8% Nasionale Verdedigingsobligasies.....	—	257 400	—	1 931 400	—
Second Series 8% Treasury Bonds.....	7% Tesourie-obligasies.....	—	258 200	—	1 304 700	—
Indefinite Period Treasury Bonds.....	Tweede Reeks 8% Tesourie-obligasies.....	—	2 425 800	—	19 553 900	—
Indefinite Period National Defence Bonds.....	Onbepaalde Termyn Tesourie-obligasies.....	—	919 450	—	4 784 750	—
	Onbepaalde Termyn Nasionale Verdedi-					
	gings-obligasies.....	—	—	—	84 517 315	—
Defence Bonus Bonds.....	Verdedigingsbonusobligasies.....	—	—	—	—	—
Internal Registered Stock:	Binnelandse Geregistreerde Effekte:					
9.75%, 2001.....	9.75%, 2001.....	—	200 100	—	422 100	—
11.5%, 2001.....	11.5%, 2001.....	—	212 000	—	339 000	—
10.35%, 2001.....	10.35%, 2001.....	—	775 400	—	1 798 400	—
9.8%, 2001.....	9.8%, 2001.....	—	737 300	—	2 611 550	—
9.25%, 2002.....	9.25%, 2002.....	—	1 167 900	—	2 932 700	—
9.25%, 2004.....	9.25%, 2004.....	—	2 142 749	—	5 501 699	—
9.0%, 2004.....	9.0%, 2004.....	—	613 667	—	1 547 667	—
9.375%, 2004.....	9.375%, 2004.....	—	618 500	—	1 975 000	—
15%, 1985.....	15%, 1985.....	—	—	—	500 000 000	—
5.5%, 1985.....	5.5%, 1985.....	—	—	—	45 707 408	—
10.5%, 1992.....	10.5%, 1992.....	—	10 000	—	347 000	—
10%, 1996.....	10%, 1996.....	—	118 500	—	231 000	—
11%, 1997.....	11%, 1997.....	—	1 053 050	—	2 414 170	—
11%, 1998.....	11%, 1998.....	—	1 214 250	—	2 626 300	—
10.75%, 1999.....	10.75%, 1999.....	—	652 200	—	1 208 700	—
10.25%, 2000.....	10.25%, 2000.....	—	64 000	—	388 660	—
10.625%, 2000.....	10.625%, 2000.....	—	392 000	—	963 000	—
10%, 2000.....	10%, 2000.....	—	765 910	—	1 504 910	—
10.5%, 2000.....	10.5%, 2000.....	—	187 500	—	850 700	—
6%, 1985.....	6%, 1985.....	—	108 903 106	—	108 903 106	—

Service	Dienste	Estimates Begroting	Month of August Maand Augustus		Total 1 April to 31 August Totaal 1 April tot 31 Augustus	
		1985/86	1985	1984	1985	1984
		R	R	R	R	R
Foreign Loans and Credits Redeemed:	Buitedlase Lenings en Kredite Gedolg:					
1978.....	1978.....	—	—	—	66 555 740	—
1983/87.....	1983/87.....	—	—	—	23 540 889	—
1981/86.....	1981/86.....	—	—	—	6 491 720	—
1976.....	1976.....	—	—	—	33 252 825	—
1984/87.....	1984/87.....	—	—	—	54 913 936	—
1985.....	1985.....	—	73 072 935	—	99 866 411	—
Issues, Revenue Services 1984/85.....	Uitbetalings, Inkomstdienste 1984/85.....	—	22 769	—	1 605 769	—
	R	—	2 192 141 436	—	8 791 443 985	—
Total State Revenue Account.....	Totaal Staatsinkomsterekening.....R	—	4 654 785 861	—	22 137 096 372	—
Appropriation Account: House of Assembly.....	Begrotingsrekening: Volksraad.....R	—	151 157 000	—	1 069 378 000	—
Appropriation Account: House of Representatives.....	Begrotingsrekening: Raad van Verteenwoor- R	—	117 000 000	—	517 000 000	—
Appropriation Account: House of Delegates.....	Begrotingsrekening: Raad van Afgevaar- R	—	47 060 000	—	220 360 000	—
	R	—	315 217 000	—	1 806 738 000	—
Totals.....	Totale.....R	—	4 970 002 861	—	23 943 834 372	—
Exchequer Balance, 31 August 1985.....	Skatkissaldo, 31 Augustus 1985.....R	—	290 921 127	—	290 921 127	—
Totals.....	Totale.....R	—	5 260 923 988	—	24 234 755 499	—



SOUTH AFRICA

BANKING INSTITUTIONS REPORT ASSETS-LIABILITIES

Pretoria GOVERNMENT GAZETTE in English/Afrikaans 20 Sep 85 pp 23-25

[Text]

NOTICE 581 OF 1985—KENNISGEWING 581 VAN 1985

STATEMENT OF ASSETS AND LIABILITIES OF BANKING INSTITUTIONS AS AT 30 JUNE 1985

[Published in terms of section 13 (5) of the Banks Act, 1965]

STAAT VAN BATES EN LASTE VAN BANKINSTELLINGS SOOS OP 30 JUNIE 1985

[Gepubliseer ingevolge artikel 13 (5) van die Bankwet, 1965]

	Commercial banks Handels- banke	Discount houses Diskonto- huise	Merchant banks Aksepbanke	General banks Algemene banke	Total Totaal
	(R1 000)	(R1 000)	(R1 000)	(R1 000)	(R1 000)
<b>LIABILITIES/LASTE</b>					
<i>Liabilities to the public</i>					
<i>Verpligtings teenoor die publiek</i>					
1. Deposits by the public/Deposito's deur die publiek:	(32 630 491)	—	(2 231 687)	(11 419 513)	(46 281 691)
Short-term/Korttermyn.....	20 166 134	—	1 287 903	4 054 768	25 508 805
Medium-term/Middeltermyn.....	9 470 164	—	717 912	4 001 729	14 189 805
Long-term/Langtermyn.....	2 994 193	—	225 872	3 363 016	6 583 081
2. Loans received by discount houses against pledge of assets/Lenings deur diskontohuise ontvang teen verpanding van bates.....	—	(1 357 700)	—	—	(1 357 700)
3. Loans and advances from/Lenings en voorskotte van:	(998 506)	(80)	(9 664)	(8 031)	(1 016 281)
S. A. Reserve Bank/S.A. Reserwebank.....	5	—	—	—	5
S. A. commercial banks/S.A. handelsbanke.....	4 424	—	732	6 831	11 987
Others/Andere.....	994 077	80	8 932	1 200	1 004 289
4. Acceptances on behalf of customers, <i>per contra</i> /Aksepte ten behoewe van kliënte, <i>per kontra</i> .....	(1 316 938)	—	(1 110 908)	(272 614)	(2 700 460)
5. Other bills payable/Andere ter betaal wissels.....	—	—	—	(51 470)	(51 470)
6. Fifty per cent of credits in transit, and other liabilities to the public/Vyftig persent van kreditte in transito, en ander verplig- tings teenoor die publiek.....	(533 219)	(14 727)	(31 286)	(320 289)	(899 521)
7 Total liabilities to the public/Totale verpligtings teenoor die publiek.....	35 479 154	1 372 507	3 383 545	12 071 917	52 307 123

	Commercial banks Handels- banke	Discount houses Diskonto- huise	Merchant banks Aksepbanke	General banks Algemene banke	Total Totaal
	(R1 000)	(R1 000)	(R1 000)	(R1 000)	(R1 000)
<b>Capital, reserves and liabilities other than to the public</b> Kapitaal, reserves en verpligtings behalwe teenoor die publiek					
8. Paid-up share capital/Gestorte aandeelkapitaal .....	240 708	8 751	76 015	88 522	413 996
9. Net unimpaired reserve funds/Netto onaangetaste reserve- fondse .....	1 429 510	26 839	208 406	633 662	2 298 417
10. Net total paid-up capital and unimpaired reserve funds/Netto totale gestorte kapitaal en onaangetaste reservefondse .....	(1 670 218)	(35 590)	(284 421)	(722 184)	(2 712 413)
11. Balance due to South African head office and local branches/ Saldo verskuldig aan Suid-Afrikaanse hoofkantoor en binne- landse takke .....	(282 610)	—	—	20 596	(303 206)
12. Unearned finance charges/Onverdiende finansieringskoste .....	(2 267 408)	(32 494)	(63 628)	(2 713 208)	(5 076 738)
13. Liabilities other than the foregoing/Ander verpligtings as bover- melde .....	(2 604 164)	(19 469)	(420 974)	(339 733)	(3 384 340)
14. Total capital, reserves and liabilities other than to the public/ Totaal van kapitaal, reserves en verpligtings behalwe teenoor die publiek .....	6 824 400	87 553	769 023	3 795 721	11 476 697
15. Grand total of liabilities/Groototaal van verpligtings .....	42 303 554	1 460 060	4 152 568	15 867 638	63 783 820
16. Total liabilities to non-residents (included in grand total of lia- bilities)/Totale verpligtings teenoor nie-inwoners (ingesluit by groototaal van verpligtings) .....	3 971 077	—	320 929	143 070	4 435 076
17. Total deposits withdrawable by cheque by clients (included in short-term deposits by the public)/totale deposito's per tjek opeisbaar deur kliënte (ingesluit by korttermyndeposito's deur die publiek) .....	—	1 643 303	—	—	1 643 303
<b>ASSETS/BATES</b>					
1. Subsidiary coin, gold coin, bullion and bank notes/Pasmunt, goudmunt, staafgoud en banknote .....	(473 253)	—	(34)	(12 107)	(485 394)
2. Deposits with/Deposito's by:	(2 126 575)	(458)	(236 340)	(357 936)	(2 721 309)
S.A. Reserve Bank/S.A. Reserwebank .....	690 043	74	59 683	192 358	942 158
S.A. commercial banks/S.A. handelsbanke .....	236 798	304	88 923	136 686	462 711
National Finance Corporation/Nasionale Finansiële korporasie	832 815	80	8 514	—	841 409
Other S.A. banking institutions/Ander S.A. bankinstellings	261 036	—	425	3 740	265 201
Foreign banking institutions/Buitelandse bankinstellings .....	66 198	—	33 025	9 653	108 876
Building societies/Bouverenigings .....	39 667	—	45 712	15 499	100 878
Local authorities/Plaaslike besture .....	18	—	58	—	76
3. Negotiable certificates of deposit/Verhandelbare depositoserti- fikaat .....	(228 790)	(48 533)	(34 009)	(14 468)	(325 800)
4. Loans and advances to banking institutions/Lenings en voorskotte aan bankinstellings:	(481 894)	—	(69 874)	(277 520)	(829 288)
Discount houses in S.A./Diskontohuise in S.A. ....	202 200	—	67 821	277 383	547 404
Other banking institutions/Ander bankinstellings .....	279 694	—	2 053	137	281 884
5. Bills of and advances to the Land Bank/Wissels van en voorskotte aan die Landbank .....	(1 062 568)	(481 784)	(23 818)	(147 285)	(1 715 455)
6. Treasury bills/Skatkissbiljette .....	(90 366)	(106 063)	(41 300)	(15 635)	(253 364)
7. Investments/Beleggings:	(4 077 329)	(402 550)	(491 468)	(1 201 236)	(6 172 583)
Government stock/Staatseffekte .....	1 177 506	298 578	150 797	516 420	2 143 301
Government loan levies/Leningsheffings deur die Regering	4 792	1 250	839	1 200	8 081
Land Bank debentures/Obligasies van die Landbank .....	887 798	70 231	48 650	247 888	1 254 567
Stocks of administration boards/Effekte van admini- strasierade .....	100	—	574	799	1 473
Stocks of local authorities/Effekte van plaaslike besture .....	21 324	2 631	5 618	18 014	47 587
Debentures or stock guaranteed by the Government/Obliga- sies of effekte deur die Regering gewaarborg .....	180 368	—	12 008	53 606	245 982
Debentures and notes issued by the Industrial Development Corporation/Obligasies en notas uitgereik deur die Nywer- heidontwikkelingskorporasie .....	63 224	—	6 230	7 000	76 454
Securities of the S.A. Reserve Bank/Effekte van die S.A. Reserwebank .....	—	—	—	—	—

	Commercial banks Handels- banke	Discount houses Diskonto- huise	Merchant banks Aksepanke	General banks Algemene banke	Total Totaal
Bills of and loans and advances to public corporations/Wissels van en lenings en voorskotte aan openbare korporasies .....	329 844	29 760	7 205	34 723	401 532
Stocks and debentures of public corporations/Effekte en obligasies van openbare korporasies .....	184 109	—	23 304	184 755	392 168
Other debentures/Ander obligasies .....	15 506	—	15 882	3 399	34 787
Building societies shares/Aandele van bouverenigings .....	11 093	—	24	6	11 123
Shares of S.A. banking institutions, S.A. Reserve Bank and National Finance Corporation/Aandele van S.A. bankinstellings, S.A. Reserwebank en Nasionale Finansiële korporasie .....	61 539	—	300	17 795	79 634
Other shares/Ander aandele .....	1 140 126	100	220 037	115 631	1 475 894
	(R1 000)	(R1 000)	(R1 000)	(R1 000)	(R1 000)
8. Bills discounted or purchased/Gediskonteerde of gekoopte wissels:	(654 863)	(381 941)	(74 827)	(205 842)	(1 317 473)
Drawn by residents of S.A.—current/Deur inwoners van S.A. getrek—lopend:					
Bankers' acceptances/Bankaksepte .....	305 696	353 715	44 844	134 457	838 712
Trade and agricultural bills/Handels-en landbouwissels .....	267 646	—	2 848	59 073	329 567
Other bills/Ander wissels .....	60 926	28 226	27 135	12 284	128 571
Drawn by non-residents—current/Deur nie-inwoners getrek—lopend .....	20 595	—	—	—	20 595
Overdue/Agterstallig .....	—	—	—	28	28
9. Hire-purchase discounts and advances (current and overdue)/Huurkoopdiskonterings en -voorskotte (lopend en agterstallig) .....	(4 145 767)	—	(161 369)	(6 302 121)	(10 609 257)
10. Deeds of sale discounted or entered into (current and overdue)/Koopaktes gediskonteer of aangegaan (lopend en agterstallig) .....	—	—	(19 209)	(25)	(19 234)
11. Loans and advances to Government/Lenings en voorskotte aan Regerings .....	(55 424)	—	(88)	(6 914)	(62 426)
12. Other loans and advances/Ander lenings en voorskotte:	(21 128 833)	(2 172)	(1 219 699)	(2 865 191)	(25 215 895)
Unsecured/Ongedek:					
Current/Lopend .....	7 699 656	—	815 652	895 050	9 410 358
Overdue/Agterstallig .....	1 684	—	3 827	1 263	6 774
Secured—current/Gedek—lopend:					
By stocks, shares or debentures/Deur effekte, aandele of obligasies .....	269 080	1 146	33 715	15 599	319 540
By mortgages over town property/Deur verbande op stedelike eiendom .....	4 324 349	1 026	136 450	795 212	5 257 037
By mortgages over farmproperty/Deur verbande op plaas-eiendom .....	1 961 357	—	3 200	194 289	2 158 846
By pledge of bills for collection/Deur verpanding van inkassowissels .....	74 243	—	—	41	74 284
By sureties and co-principal debtors/Deur borge en medehoofskuldenare—					
Personal loans/Persoonlike lenings .....	819 723	—	22 637	211 579	1 053 939
Other/Ander .....	3 811 144	—	111 350	382 893	4 305 387
By other means/Op 'n ander wyse .....	2 054 132	—	81 247	298 286	2 433 665
Secured—overdue/Gedek—Agterstallig .....	41 833	—	11 621	25 403	78 857
Factoring/Faktoring:					
Current/Lopend .....	71 634	—	—	45 575	117 209
Overdue/Agterstallig .....	—	—	—	—	—
13. Merchandise leases (current and overdue)/Handelsware-huurkontrakke (lopend en agterstallig) .....	(1 772 708)	—	(51 382)	(3 781 330)	(5 605 420)
14. Balances due by branches and S.A. head office/Saldo's verskuldig deur takke en S.A. hoofkantoor .....	(1 276 380)	—	—	(81 308)	(1 357 688)
15. Clients' liability on acceptances outstanding, <i>per contra</i> /Verpligtings van kliënte uit hoofde van uitstaande aksepte, <i>per kontra</i> .....	(1 316 938)	—	(1 110 908)	(272 614)	(2 700 460)

16. Furniture, fittings and equipment/Ameublement, toebehore en uitrusting.....	(559 840)	(91)	(17 738)	(66 130)	(643 799)
17. Bank premises/Bank persele.....	(680 464)	(100)	(5 850)	(47 905)	(734 319)
18. Fixed property other than bank premises/Vaste eiendom behalwe bankpersele.....	(55 638)	—	(18 759)	(30 976)	(105 373)
19. Assets other than the foregoing/Ander bates as bovermelde .....	(2 115 924)	(36 368)	(575 896)	(181 095)	(2 909 283)
20. Total assets/Totale bates .....	42 303 554	1 460 060	4 152 568	15 867 638	63 783 820
21. Total foreign assets (included in total assets)/Totale buitelandse bates (ingesluit by totale bates).....	466 775	—	288 192	861 672	1 616 639

*Note/Opmeking:*

(a) Where figures are given to a certain degree of approximation, the total shown does not necessarily equal the sum of its constituent items/Waar bedrae tot 'n bepaalde graad van benadering gegee word, sal die aangegeve totaal nie noodwendig gelyk wees aan die som van sy samestellende bedrae nie.

(b) "O" indicates an amount less than R500 and "—" no amount whatever/"O" dui 'n bedrag minder as R500 aan en "—" geen bedrag.  
(20 September 1985)

CSO: 3400/185

SOUTH AFRICA

ENTREPRENEURS NEEDED FOR RURAL POWER

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 16

[Text] South Africa faces major challenges in providing energy for rural areas in the near and longer term, says Dr Gert Venter, manager of the National Programme for Energy Research (NPER).

In the short term, the country will have to develop more efficient domestic cooking/heating units to stem the tide of rural deforestation, and, in time, it might have to look at decentralised energy provision in these areas.

Entrepreneurs, Dr Venter believes, have a key role to play in these challenges.

Some 15-million people in Southern Africa rely on firewood for about 90% of their energy requirements, mainly cooking and heating. A combination of massive over-exploitation in some densely populated areas, and a general lack of planned afforestation in those areas have resulted in very serious deforestation in certain regions.

"The by-product of deforestation is ecological damage and a decline in the quality of life," Dr Venter says.

A possible solution to the looming crisis, he says, is to develop high-efficiency, low-cost stoves.

"Presently, firewood is used mostly in open fires whose thermal efficiency is of the order of 1%.

"The CSIR is supporting the development of a low-cost, energy-efficient stove which could, perhaps, be manufactured locally in the rural areas and cost as little as R50.

Overseas research organisations, too, are engaged in similar R & D projects, and one of the questions being asked is whether energy-efficient stoves actually save energy.

"The answer is no," Dr Venter says. "But the point is that users could get more out of them and, hence, such units would tend to improve the quality of life."

If the looming deforestation crisis is to be averted, serious attention will have to be given to large-scale, multi-disciplinary afforestation projects, Dr Venter believes.

In the medium term, the question of electricity supply to rural areas will have to be addressed. The provision of electricity is a powerful factor in the improvement of the quality of life.

"But," says Dr Venter, "when one is talking about supplying electricity to half of the country's population, the question which must be answered is whether it is more cost-effective to extend the Escom grid or to supply electricity on a decentralised basis."

A related issue, he says, is that of partial electricity supply. In the past, largely First World standards have been applied to the provision of electricity in South Africa.

"The question now is whether South Africa can afford to apply these standards to the rural areas, and whether we should not perhaps be looking at appropriate standards which could contribute to lower capital costs.

Partial electricity supply would, of necessity, involve the use of a variety of renewable energy sources.

Dr Venter says demand for electricity in rural areas revolves around lighting, television and radio. Photovoltaic cell technology, for example, is developing to the extent that it could, within the next few years, be successfully used for some of these low-power requirements in dwellings.

Photovoltaic cells could conceivably be used in conjunction with "new-generation" stoves for cooking and heating, solar panels for heating water (assuming that piped water is available), and, perhaps, other renewable energy sources.

The challenge, Dr Venter says, is to integrate these alternative sources into highly efficient systems. The major stumbling block is cost, and, Dr Venter says, South Africa urgently requires competent entrepreneurs to co-develop and market viable systems at the lowest possible cost.

"There is a 'lot of merit' in a partnership between the public and private sectors."

SOUTH AFRICA

TPQ PLAN INCREASES PRODUCTIVITY

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 13

[Text]

Productivity at Escom's Kriel power station in the eastern Transvaal increased by 9,58% from 1983 to 1984 measured by the pilot implementation of REALST (Resource Allocation Strategist), a computer-based productivity model developed by the National Productivity Institute (NPI).

The main reasons for the sharp increase were better material usage, energy gains (in coal, fuel oils and the like) and better manpower utilisation.

Another REALST pilot project, at Distribution Central (Rand and OFS region), showed a 7,55% gain over a six-month period, due mainly to better utilisation of labour, improved material usage and better utilisation of transport.

These pilot projects are part of Escom's Total Productivity and Quality (TPQ) programme, in development since 1983 in conjunction with the NPI. One of the objectives is to boost total productivity within the 66 000-employee company.

Says the head of productivity services, Louis van der Merwe: "The aim is to improve the productivity of all aspects and total resources utilisation of the organisation, not only that of labour. And we believe that productivity and quality are inseparable, hence the title, Total Productivity and Quality."

At the centre of the TPQ programme are the following philosophies: the clear definition of responsibilities; participation; decentralisation; the development of problem-solving capabilities and the recognition of contributions to said goals. The main thrust of TPQ is to foster these principles at all levels.

But, Van der Merwe says, Escom believes that some 80% of productivity gains originate in line management processes. Thus, many of the TPQ projects involve placing productivity tools such as REALST in the hands of line managers and helping them to determine ways of measuring output and the better utilisation of resources within their area of responsibility. This also enables line management to plan and drive the programme.

One such project is the so-called key performance areas scheme. This involves the identification, in consultation with the managers concerned, of those areas which are critical to the successful management of an entity such as a power station.

The TPQ project team will, for example, meet with power station managers and regional managers to identify these key areas. Thereafter, TPQ facilitators will assist the management team in identifying measurable outputs and ways to measure the output.

"The aim is to help managers to see more clearly what the priorities are. At the same time, we are building goal-orientated management teams at all levels of the organisation."

Another project is the formation of TPQ management teams which aim to promote problem-solving capabilities. Managers are encouraged to solve problems in group context.

The above TPQ projects run in tandem with Escom's productivity and quality circles (PQCs), which now number between 80 and 90. It is estimated that Escom saves R6 for every rand it invests in PQCs, although, Van der Merwe says, capital savings are not the primary aim of PQCs.

"The corporate TPQ steering committee, which is chaired by the CEO, adopted the following policy for PQCs: to develop and recognise the supervisor and his team in participative problem-solving as well as the improvement of productivity and quality."

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SOUTH AFRICA

BEST USE OF COAL DISCUSSED

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 12

[Text]

Of the R3 995-million in costs incurred by Escom last year, almost 18%, or about R680-million was on the purchase and railage of almost 56 Mt of coal (See diagram).

Clearly, there are important benefits to be derived from optimum allocation, extraction and processing of fossil fuel deposits.

Escom has instituted several measures to minimise cost escalations in this area.

It has, for example, for a number of years, located power stations at or near coal deposits, and, on several occasions, jointly financed power station-tied collieries.

In these instances, the utility, because it was able to raise capital at lower interest rates than private enterprise, was able to reduce capital costs.

But, says Dr Dirk Neethling, chief director of the energy branch of the Department of Mineral and Energy Affairs (DMEA) and member of the Energy Policy Committee (EPC), one of the single most important elements in the bid to contain the cost of fuel could well be the promotion of the multi-product colliery concept.

The concept is relatively new, at least as far as large-scale applications are concerned. Essentially, run-of-mine coal is beneficiated by the coal producer/owner to yield two usable products, one of which is a product suitable for thermal power generation, the other for use at the colliery owner's discretion, either for export or for local use.

Escom's 11 Mt-a-year, air-cooled Matimba facility, for example, will, when it goes on-stream later this year, be supplied with beneficiated coal from Iscor's Grootegeluk colliery near Ellisras.

The middle product will go to Matimba, while metallurgical-grade coal will continue to be used in Iscor's processes.

Says Dr Neethling: "In addition, and very importantly, one is increasing the life of national reserves for future consumption."

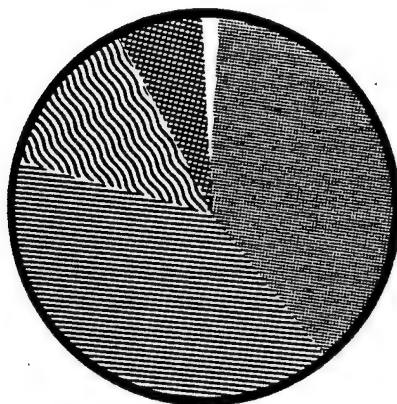
The overwhelming majority of Escom's thermal power stations are or will be supplied by privately-owned collieries, and the multi-product colliery concept remains, therefore, to a large extent linked to the coal export programme, now in its fourth phase.

From this perspective, multi-product collieries could have significant advantages.

On the one hand, says Dr Neethling, many "would like an Escom-tied mine in their portfolio because, while the export market fluctuates, Escom demand is fairly steady."

On the other, Escom-tied mines by definition tie up substantial reserves. The multi-product concept promises the best of both worlds by allowing mining houses to skim off coal for export while meeting Escom demand.

**Breakdown of costs — 1984**  
R3 995-million



■	39 % Generation costs
	26,4 % operation:
	17,6 % coal costs
	1,0 % railage on coal
	7,8 % other (including nuclear)
	5,8 % maintenance
	6,8 % administration and general
▨	39 % Loan charges
	32,0 % interest:
	22,8 % generation
	9,0 % distribution
	0,2 % corporate services
	7,0 % redemption:
	6,0 % generation
	0,9 % distribution
	0,1 % corporate services
▤	13 % Contribution to statutory funds
	11,3 % Capital Development Fund
	1,7 % Reserve Fund
▦	8 % Distribution costs
	0,2 % operation
	2,0 % maintenance
	5,8 % administration
□	1 % Corporate management and electricity purchased
	0,9 % corporate management
	0,1 % electricity purchased

Rand Mines, for one, is considering going the multi-product route on an, as yet, unnamed Escom-tied mine.

Says David Michael, consulting metallurgist of Rand Mines' coal division: "These reserves could, perhaps, be better utilised. Investigations have shown that re-allocating certain reserves could be mutually beneficial. It will give us room to manoeuvre."

Until now, a disincentive from the mines' point of view has been the Phase 4 export

quota, which restricts permissible total annual coal exports to 80-million tons. Mines considering going the multi-product route would have to export the product as part of their individual quotas.

But, Dr Neethling told Engineering-Week, the DMEA is about to announce that tonnages of export-grade coal from multi-product mines will not be subtracted from individual export quotas, in other words will be over and above the 80-million-ton export ceiling.

All of this is good news for shareholders, but, as Dr Neethling puts it, "Escom cannot only go to the consumer waving the national flag and say: 'We have extended the life of the national coal reserves'."

The beneficiated coal delivered to Escom is, of necessity, a relatively low-volatility fuel. But, as reserves depleted, Escom gradually has had to use lower-quality coal, which, among other things, has meant that greater volumes have had to be processed, and greater volumes of fly ash have been produced.

The beauty of multi-product collieries, Rand Mines' Michael says, is that the product is of a more consistent quality, which maximises heat recovery in power station boilers, and is less abrasive.

The volume of coal, and hence fly ash, that has to be processed is also substantially reduced.

The bottom line, as far as Escom and the consumer are concerned, is a coal price reflecting these advantages.

The optimum use of fuel at Escom's thermal power stations depends, to a large degree, on the proper evaluation and allocation of coal reserves, a complex exercise which should take cognisance of environmental constraints and other factors.

The DMEA, therefore, is in the process of commissioning a totally new evaluation of national reserves.

Says the DMEA's Dr Neethling: "There has, perhaps, been an over-exploitation of certain regions for the supply of fuel to power stations. The proposed new evaluation, which should be vastly more sophisticated than the existing one, will form the basis of a coal management system that should provide us with guidelines for better decision-making."



SOUTH AFRICA

COAL EXPORTS IN JEOPARDY

Johannesburg THE SUNDAY STAR (Business) in English 22 Sep 85 p 1

[Article by John Orpen]

[Text]

SA COAL exports worth R2.4 billion are in jeopardy.

Countries around the world, but particularly in Europe, are taking active steps to boycott South African coal imports.

These steps are not only being taken for obvious political reasons but because the general state of unrest in the country — together with the recent threatened miners' strike — has done nothing to improve South Africa's image as a reliable supplier.

A new and potentially more serious threat to our coal exports has recently come to light in France. In the past three weeks there have been protests against imports of South African coal by French stevedores who have been holding up the offloading of coal at Le Havre, Rouen and Fos.

This action is bound to increase as coal imports are

particularly sensitive at the moment due to the possible closure of uneconomic French coal mines, which are not competitive with imported coal. There appears to be collusion between the stevedores and coal miners who fear for their jobs.

The protests are "to show solidarity with South African workers, the interests of French workers and opposition to apartheid".

Last year France imported about 6.1 million tons of SA coal or 16 percent of our export sales. A similar situation also applies to Italy with its uneconomic coal pits. Ships carrying coal look like being blockaded there too.

Italy represents roughly 12 percent of SA coal exports but the state electricity utility ENEL is not yet ready to make contract decisions as "it is a political issue, not a technical or commercial one".

The El Cerrejon project in Colombia also poses a threat to SA coal exports. It is now up and running with an eventual target production of 25 million tons a year, and its output does not carry the political stigma of SA coal.

According to David Russell, analyst with J.D.Anderson, "Assuming a worst case scenario, with all the political rumblings, South Africa could lose up to 40 percent of its current export market share. The mining houses here are currently viewing the political stands being taken as marketing strategies to get sales at lower prices from grateful South African suppliers! Just how true that view is, only time will tell."

However, on the bright side, because of its cost competitiveness and reliability of quality and supply, South Africa should be able to maintain its 27 percent share of the less politically sensitive Pacific rim markets like Japan

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SOUTH AFRICA

CURRENT ESCOM PROJECTS DETAILED

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 22

[Text]

*By curbing growth in demand for electricity, Escom's demand-side management programme, if successful, could cut cumulative capital expenditure to the year 2000 by up to R15-billion.*

*This is in addition to capex cuts announced after the submission and government acceptance of the De Villiers commission of enquiry's report late last year.*

*The commission estimated that demand for electricity is likely to grow at an average of 5% a year and not, as Escom extrapolations suggested at the time, by 7%. Revised estimates subsequently put average annual growth at 6%, and it is on this basis that the major power station construction projects highlighted on this page are progressing.*

*The commission also recommended that Escom play a leading role in promoting energy conservation in order to achieve "a more modest" growth in capital expenditure. It said Escom should strive to cut demand for power in the long term by between 0.7% and 1%, which, in 1984 rands, translates into a massive R15-billion.*

*To what extent demand-side management projects now in the pipeline will affect capital expenditure remains to be seen, though it is highly unlikely that they will impact on any of the current projects listed here.*

**Power Station:** Matimba  
**Location:** Near Ellisras  
**Method of firing:** Coal-fired  
**Installed capacity:**  $6 \times 665$  MW (When completed)  
**Annual fuel requirement:** 11 Mt  
**Source of fuel:** Iscor's Grootgeluk colliery  
**Water from:** Strydom Dam on Mogol River  
**Status:** First set to be completed 1986, last set 1991  
**Civils**  
**Terracing:** LTA Construction  
**Main civils and building works:** Concor Construction  
**Chimneys:** Concor Construction  
**Coal handling system**  
**Type:** Stacker reclaiming system: Iscor/MAN  
**Terrace coal handling:** LTA Mitec  
**Stockyard conveyor system:** E L Bateman  
**Coal plant civils:** Concor Construction  
**Boilers**  
**Main contractor:** Sieva  
**Turbo-generators**  
**Main contractors:** MAN/Alstom and IMS  
**Boiler feed pumps:** MAN/Howden Weir  
**Boiler feed pump Drives:** MAN/Brown Boveri  
**Electrical Work\***  
**Main cabling contractor:** Industrial Electrical  
**Generator transformers:** Asea Electric  
**Generator busbar:** Hubert Davies  
**Switchgear:** Industrial Electrical (Merlin Gerin and AEG Telefunken) (Siemens)  
**Instrumentation**  
**Boiler & turbine control systems:** Siemens  
**Water treatment control systems:** Hartmann and Brown  
**Outside plant:** Brown Boveri  
**Cooling system**  
**Type:** Direct air-cooled steam condenser  
**Main contractor:** GEA Aircooled Systems  
**Auxiliary cooling:** Hamon Sobelco  
**Ash handling system**  
**Type:** conveyor-based dry ashing system  
**Dust handling plant:** Simon Carves  
**Conditioners:** Babcock Cladius Peters  
**Overland Ash Conveyors:** Babcock Moxey  
**Stacker plant:** Mannesmann Demag  
**Environmental control systems**  
**Precipitators:** Simon Carves  
**Water treatment plant:** Simon Carves  
**Low-Pressure Services**  
**Main contractor:** Genrec-PED

\* Including main contractors

**Power Station:** Palmiet pumped storage scheme  
**Location:** Near Grabouw, Cape Province  
**Installed capacity:**  $2 \times 200$  MW (when completed)  
**Source of energy:** Water from Palmiet River  
**Status:** First set to be commissioned, December 1987. Second set to be commissioned, March 1988  
**Major Contractors**  
**Rockview and Kogelberg Dams:** Department of Water Affairs  
**Preliminary civil work and site access roads:** Savage & Lovemore  
**Main civil work:** Palmiet Civil Contractors (PCC)  
**Pump turbines:** J M Voith GmbH (Germany)  
**Generator motors:** Fuji Electric Co (Japan)  
**Penstock steel liners:** Sorefame Africa  
**Hydraulic gates and screens:** John Thompson Africa  
**Machine hall EOT crane:** Mannesmann Demag  
**Main transformers:** Asea Electric (South Africa)  
**Load switches and reversing isolators:** Brown Boveri (South Africa)  
**Civil consulting engineers:** SVE (a consortium of Ninham Shand, Van Niekerk Klein & Edwards, and Electrowatt)  
**Environmental consultants:** Ekoconsult Inc

**Power Station:** Koeberg  
**Location:** Near Cape Town  
**Method of firing:** Nuclear pressurised water reactor (PWR)  
**Installed capacity:**  $2 \times 922$  MW (e) (when fully operational)  
**Annual fuel requirements:** 48 480 kg U in UO enriched 3,25 %  
**Water from:** Fresh water from Voelvlei, seawater for cooling circuits  
**Status:** First set taken into commercial operation on July 21, 1984. Last set to be taken into commercial operation about October 1985  
**Civils**  
**Main Contractor:** Spie-Batignolles  
**Reactors:** Framatome  
**Turbines:** Alstom  
**Electrical Work:** CGEE-Alstom  
**Instrumentation**  
**Reactor turbine control systems:** Framatome  
**Water treatment control systems:** Alstom  
**Outside plant:** Alstom  
**Remote switching:** CGEE Alstom  
**Environmental control systems\***  
**Dressing\***

\* Including main contractors

**Power Station: Majuba**  
**Location:** Near Amersfoort  
**Method of firing:** Coal-fired  
**Installed capacity:** 6 × 657 MW (when completed)  
**Annual fuel requirement:** 11 Mt  
**Source of fuel:** Rand Mines' Majuba colliery  
**Water from:** Proposed dam on Slang River east of Volksrust  
**Status:** First set to be completed 1991, last set 1995  
**Civils**  
**Terracing:** Concor Roads  
**Main civil contract:** Engineering not yet issued  
**Coal-handling system**  
**Engineering not yet issued**  
**Boilers**  
**Main contractor:** Steinmüller  
**Turbo-generators**  
**Main contractor:** GEC  
**Electrical works**  
**Construction Cabling and Industrial Electric Instrumentation**  
**Control and instrumentation:** Not decided  
**Cooling system**  
**Direct dry-cooling:** GEA  
**Ash-handling system**  
**Type:** Conveyor-based dry ashing system  
**Tenders not yet issued or decided**  
**Environmental control systems**  
**Precipitators:** Tenders not yet issued or decided

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**Power Station: Kendal**  
**Location:** Near Witbank  
**Method of firing:** Coal-fired  
**Installed capacity:** 6 × 686 MW (when completed)  
**Annual fuel requirement:** 12 Mt  
**Source of fuel:** TCL's Khutala colliery  
**Water from:** Usutu and Vaal rivers  
**Status:** First set to be completed 1988, last set 1993  
**Civils**  
**Terracing and main civil work:** Gillis Mason  
**Coal handling system**  
**Stockyard:** PWB Weserhutte  
**Stocker reclaimer:** PWB Weserhutte  
**Civil works:** Gillis Mason  
**Boilers**  
**Main contractor:** Combustion Engineering  
**Turbo-generators**  
**Main contractor:** KWU  
**Electrical work**  
**Generation transformers:** Asea

**Distribution transformers:** GEC  
**Instrumentation**  
**Boiler-turbine control system:** Brown-Boveri (South Africa)  
**Remote switching:** Siemens  
**Water treatment and outside plant:** Not decided  
**Cooling system**  
**Dry-cooling:** DB Thermal (indirect)  
**Ash-handling system**  
**Type:** Conveyor-based dry-ash system  
**Conditioners:** Babcocks  
**Dust-handling plant, overland ash conveyors and dump system:** Tenders at present in adjudication  
**Environmental control systems**  
**Precipitators:** Walther-IMS consortium  
**Power Station: Tutuka**  
**Location:** Near Standerton  
**Method of firing:** Coal-fired  
**Installed capacity:** 6 × 609 MW (when completed)  
**Annual fuel requirement:** 10 Mt  
**Source of fuel:** Anglo-American's New Denmark colliery  
**Water from:** Grootdraai Dam on Vaal River  
**Status:** First set taken into commercial operation May 1985. Last set to be completed 1990  
**Civils**  
**Terracing and main civil:** Gillis Mason and CMGM  
**Chimneys:** Karrena Africa  
**\* Coal handling system**  
**E L Bateman**  
**Boilers**  
**Main contractor:** Steinmüller  
**Turbo-generators**  
**Main contractor:** GEC Engineering  
**Feedheaters:** GEC/Hamon Sobelko  
**\* Electrical work**  
**Main transformers:** Asea  
**Cabling:** Hubert Davies  
**Instrumentation**  
**Control and instrumentation:** Siemens  
**Cooling system**  
**Cooling towers:** GEA  
**Ash-handling system**  
**Type:** Dry-ashing conveyor-based system  
**Conditioners:** Steinmüller  
**Overland ash conveyors:** E L Bateman  
**Stacker plant:** Weserhutte  
**\* Dressing**  
**Environmental control systems**  
**Precipitators:** Lurgi  
**Water treatment plant:** Foster Wheeler

*\* Including main contractors*

## ESCOM PRODUCTIVITY DRIVE GAINS IMPETUS

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 10

[Text]

The need to contain capital expenditure and optimise efficiency explicit in this key recommendation of the De Villiers report has given new impetus to the drive to improve productivity within Escom.

This centres on the so-called Total Productivity and Quality (TPQ) programme, which, as the name implies, is meant to embrace and inform all corporate activities, and to boost aggregate corporate productivity by at least 3% a year (See Page 11).

In an organisation with fixed assets of R19-billion, plant will naturally play a major role in any corporate productivity gains. Areas which could yield productivity gains include plant design, availability and thermal efficiency, according to J S "Bussie" Els, who as GM, operations, oversees planning, control, operation, maintenance and performance of the generating and integrated power system.

He says the possibility of incorporating lower initial cost items at the design stage is being investigated in greater depth.

"One could, for instance, look at instead of ordering a Mercedes, buying a Volkswagen, as it were, provided the performance is comparable.

"While it could be cost-disadvantageous over the life of the equipment, it could in the present capital squeeze have the advantage of reducing initial capital costs."

A design technique which has proved to be highly cost-effective and which will be applied to good effect to future projects, is standardisation, where feasible, of generating plant.

Says Els: "We design so-called six-packs, power stations utilising six generating sets of equal generating capacity. Thereby, we are able to optimise the number of installations, such as conveyors, at each power station. In turn, this optimises spare parts and, from an operations point of view, reduces the number of skilled personnel.

"We have also, to a certain extent, standardised on certain boiler/turbine configurations. The Duvha installation, for example, is duplicated at Tunika, while the Matla and Lethabo, and Matimba and Kendal facilities utilise similar plant.

"This means that we are able to apply knowhow developed at one power station to the other."

Thermal efficiency is another area where further productivity gains could be made. On an average sent-out basis, the thermal efficiency of Escom stations has increased quite dramatically over the past decade, from 28,7% to 31,4% (1965: 23,6%). However, because the improvement of thermal efficiency has certain financial and practical constraints, further improvements in this area will probably be less substantial.

Explains Els: "When one has reached 36% to 37% efficiency, which is the norm at new-generation facilities such as

Duvha, one has probably gone as far as one can go."

At the same time, improving the efficiency of older power stations, some of which average in the region of 20%, is constrained by the capital cost.

"There is a point where one can really not improve without vastly increasing the capital cost of the equipment. In view of the relative low cost of coal, it would not be cost-effective to try.

"If, however, the coal price increased substantially, it might be to our advantage to spend the money."

While some would argue that curtailing maintenance is a highly effective means of saving money, Escom has proved beyond doubt that its planned maintenance programmes are cost-effective, as the average availability (capacity hours available x 100 ÷ total capacity hours

in a year) of power stations is increased.

Power station availability is central to the drive to reduce capex and fuel costs. It determines the reserve capacity which Escom requires: the smaller the reserve, the less capital need be spent on equipment which normally is unutilised.

It is generally more cost-effective to invest in improving availability than it is to provide reserve capacity.

"But," Els says, "there is a crossover point, and we, therefore, attempt to optimise by improving availability to the point where it costs us less than it would to have a higher reserve margin.

"Target availability, which we hope to achieve within the next five years, is 77% (the current figure is roughly 75%, up 3% over 1983)."

CSO: 3400/185

## SOUTH AFRICA

## CSIR'S GENETIC ENGINEERING DESCRIBED

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 3

[Textp]

Genetic engineering is set to revolutionise areas as diverse as medicine, agriculture, mining and chemical processing in South Africa, according to Prof Jennifer Thomson, head of the CSIR's molecular and cell biology laboratory.

Restriction enzymes discovered 10 years ago can recognise DNA sequences in genes and cut them, enabling them to be spliced on to a plasmid vector and introduced into another organism such as a bacterium, she explained.

The cloned gene, when introduced into the bacterium, multiplies and thus produces replicas.

In the field of pharmaceuticals, insulin and various hormones are produced in this way and laboratories are presently working on a possible cure for viruses, which may have a role in cancer therapy.

This could be possible by cloning interferon, which is produced in very small quantities by the body as the first defence against viral attack.

At present, enzymes and proteins are being imported at a high cost from overseas, and Prof Thomson believes South Africa should develop its own.

These enzymes could be used for waste degradation in factories and abattoirs and for water purification.

In the field of agriculture, genetic transplants into plants could make food crops resistant to drought and disease and also improve crop yield.

"In the food-processing industry, for example, an area of research is into sweeteners. A fruit pod in Africa produces thaumatin, which is 2 000 times sweeter than sucrose, and is being commercially produced by Tate and Lyle."

In the chemical processing industry, bacteria could be designed to work at different temperatures and pH, in the production of solvents such as butanol and acetone.

Other applications are in milling, baking and beer brewing.

Bacteria are responsible for solubilising substrates of ore to form a solution, and plans are being made to produce these commercially for use in the extraction of ores such as gold and uranium.

In the medical field, genetic engineering could result in breakthroughs in the prenatal diagnosis of genetic disease.

Genetic transplants may, one day, be used as therapies for diseases.

Prof Thomson and her CSIR colleagues are confident of future breakthroughs — provided South Africa can catch up with state-of-the-art technologies, she said.

SOUTH AFRICA

AEC'S PLATING PLANT DIVERSIFIES

Johannesburg ENGINEERING WEEK in English 26 Sep 85 p 25

[Text]

The Western World's largest and most sophisticated electrolytic and electroless plating plant is set to make inroads to the mining, oil, gas and chemical industries.

The Atomic Energy Corporation's plating division has just completed the electroless nickel plating of six rams for hydraulic roof supports for a local mine.

This could be the first in a series of revolutionary developments for mining in South Africa.

Said manager of the division, Derrick Cluver: "Conventional coatings usually crack under expansion, making the equipment vulnerable to corrosion.

We coated the rams with a ductile layer of nickel and a second hard, abrasion-resistant layer to overcome this problem."

He explained to Engineering Week that until a month or two ago, the Atomic Energy Corporation's plating division was operating at full capacity. Now that the nickel plating of the new uranium enrichment plant at Pelindaba is complete, the plant has a 90% spare capacity.

"We believe we can now fill an important niche in the plating field. We have an enormous plant, with 18 plating lines, 6 mx6 mx7 m tanks and the most advanced technology, not previously available in this country. All our specifications have been to nuclear standards, so quality is of the very best."

Electroless nickel plating, a technology new to South Africa, is of particular importance to mining. It provides a uniform coating on every surface and is corrosion resistant to dilute acids and chlorides.

The abrasion, wear and galling resistance is excellent and equals the hardness of chrome when heat-treated.

It can be applied to a number of substrates such as stainless steel, iron, mild steel, copper, brass and certain plastics.

Applications of the technology include the automotive, aircraft, computer, electronics and food processing industries.

There are also numerous possibilities for electroless plating using materials such as teflon.

"Our aim is not to compete with existing small platers, but to complement them and we will be looking specifically at import substitution," Cluver added.

CSO: 3400/185



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SOUTH AFRICA

SASOL PLANS FOURTH SYNTHETIC FUEL PLANT

Johannesburg THE STAR in English 10 Oct 85 p 15

[Article by Peter Farley]

[Text]

Sasol is preparing the way for the establishment of a fourth synthetic fuel plant, but because of current financial commitments will not be ready to launch such a project for the next few years.

Chairman Mr David de Villiers writes in the group's annual report that good progress is being made on both technical and financial fronts in preparation for such a project, particularly in respect of gasification and synthesis techniques.

Mr de Villiers stresses, however, that Sasol welcomes the renewed interest shown in such fuel projects by other private sector organisations.

He said the participation of others in these projects would not only be in the best interests of the country, but it would also reduce the pressure on Sasol to launch another massive project before it is ready to do so.

He points out that a practical structure for investment in new synthetic fuel projects has been established and adds that he is confident that this structure would be applied uniformly to all such projects.

The main reason Sasol finds itself unable to go ahead at this

stage with a new plant is the repayment of loans following the acquisition of Sasol 2 and the additional commitments that will arise from the future acquisition of Sasol 3.

Mr de Villiers points out that Sasol's repayments — along with interest and dividends — has added almost R2,6 billion to State coffers over the past two years. This outstrips the total capital cost of Sasol 2.

Commenting on the group's moves into fertilizer and explosives Mr de Villiers says that the fertilizer operations lost money last year, but he is confident that, given favourable rains, the division should break even this year.

On the explosives side he says that trials are still continuing and that tests have confirmed their confidence in this new venture, which he expects to be operational by the end of this financial year.

Looking to the current financial year Mr de Villiers notes that, provided there are no drastic deviations from the historical pattern of crude oil prices and rand/dollar rate, increased volumes and reduced interest commitments should enable sound profit growth to be maintained.

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SOUTH AFRICA

EMPRO AWARDED LINING CONTRACT

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 29

[Text]

Empro, a Germiston-based company in the Murray & Roberts Group, has been awarded a R600 000 contract to line the internal surfaces of new concrete demineralised water tanks at Escom's Kendal power station.

The lining material is Kerabutyl V pre-cured butyl rubber in pre-vulcanised double ply sheet form. The top layer is a pre-cured butyl rubber which is said to have good chemical resistance, is resistant to temperatures up to 100° C and is highly resistant against diffusion and leaching.

The bottom layer is a cold curing compound which guarantees an outstanding bond.

Says Gary Johnson, marketing manager of Empro's Germiston plant: "Rubber lining of concrete tanks containing corrosive liquids, or liquids sensitive to contamination, has become more

suitable than any other substrate-bound coating.

"Besides good chemical and abrasion resistance, rubber lining provides for excellent crack bridging qualities, essential for concrete structures where movement due to expansion and contraction is unavoidable."

The Kerabutyl V system was researched and developed by Empro's West German licensors, KCH-Keramchemi and it has proved highly successful in its application to power stations, pickling lines and the chemical industry.

Work on the three 3500 m<sup>3</sup> capacity Kendal tanks will commence in late 1985/early 1986, and the four-month contract period calls for the completion of the project by the end of April 1986. The demineralised water plant is due to be commissioned next June.

CSO: 3400/185

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SOUTH AFRICA

BIG DEMAND FOR UPS UNITS REPORTED

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 47

[Text]

Despite one of the worst economic slumps in South African history, one sector of the economy is recording healthy gains.

This is the power protection equipment industry, one of whose market leaders is reporting record sales of locally produced uninterruptible power supply (UPS) systems for commerce and industry.

Says Wolfgang Junker, managing director of Omnitec Electronic Manufacturers: "The steady growth of computers and electronics in office and industry has created a parallel demand for reliable systems to protect equipment and software from power cuts or disturbances."

The largest demand for backup equipment, Omnitec reports, is for locally manufactured Omnipower UPS units, which have reached such high standards that Olivetti Africa has given them its official seal of approval.

Olivetti has recommended to distributors throughout South Africa that they specify Omnipower UPS units for use in conjunction with Olivetti systems.

And Olivetti and Omnitec have also signed an agreement wherein Olivetti will

undertake the servicing and maintenance of Omnitec equipment throughout Southern Africa.

Believed to be the first tie-up of its kind between a major computer company and a leading local UPS manufacturer, the deal will give users of Omnipower UPS units access to Olivetti's nationwide network of 42 supply and service centres.

Omnitec's current catalogue of local and imported power protection equipment includes:

- A new range of compact 10 and 15 kVA pulse-width modulated thyristor-controlled UPS units, which will shortly be upgraded to 45 kVA;  
The Omnipower 300 and 500 VA and 1, 2, 3 and 5 kVA UPS units;
- Spanish Salicru power line conditioners, an alternative power protection device which "irons out" and rectifies spikes, dips and transients and stabilises voltage fluctuations; and
- "Heavyweight" French Socomec UPS units of 25 kVA rating and above.

CSO: 3400/185

SOUTH AFRICA

## KENDAL POWER STATIONS COOLING TOWERS UNDER CONSTRUCTION

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 25

[Text]

High Structures, a specialist company jointly owned by Group Five and Gillis Mason, is making excellent progress on a contract worth R45-million to construct six dry cooling towers at Kendal power station.

On completion these structures, one of which is pictured here in the early stages of construction, will be the largest cooling towers yet built anywhere in the world. Each will be a massive 144 m in diameter above the columns, as against 100 m, for example, at Matla.

Each shell will require 16 000 m<sup>3</sup> of concrete (Matla: 7 000 m<sup>3</sup>) and 1 170 t of reinforcing, and will be 165 m high (Matla: 150 m).

The towers will each be supported by 52 huge cross-columns standing on a series of piles with a ring beam on top. The cross-columns are cast *in situ* at pond floor level and laid onto soffits for several

weeks before being lifted into position.

Each cross-column requires 53,3 m<sup>3</sup> of concrete, 16,5 t of reinforcing and 210 m<sup>2</sup> of shuttering. Each weighs 133 t and stands 25 m high.

Positioning these huge columns presented a considerable problem, which was solved by the use of a specially devised lifting system involving steel lifting legs and winches instead of a crane.

Says Frans Barnard, a director of High Structures: "The use of this system, which is a world first and has been patented, achieves a considerable saving when weighed against the cost of a large crane.

"Another advantage of the system is that no staging is required for work above the columns.

"The workers operate from platforms rigged onto special corbels on the sides of the cross-columns," said Barnard.

SOUTH AFRICA

CONSTRUCTION OF ESCOM'S TUTUKA POWER STATION REPORTED

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 26

[Text]

With one boiler unit already feeding power into the national electricity grid and a second nearing completion, Steinmuller is ahead of schedule with the construction of Escom's Tutuka power station.

Steinmuller is the main contractor for the boiler plant project, with about 1 000 Steinmuller employees on site.

The company has a prominent share in the ash handling segment of the Tutuka project, which includes the coarse ash extraction equipment from the boiler and the precipitator dust conditioning plant which has been engineered and supplied by L & C Steinmuller Construction. Steinmuller's share of the total project cost is about R750-million.

Work on the 3 600 MW coal-fired station near Standerton in the Eastern Transvaal began in August 1980, and it is scheduled to come fully on stream in November 1989. The station is being fed by conveyor line from New Denmark colliery about 5 km across the veld.

Steinmuller has established an 8 000 m<sup>2</sup> on-site workshop complex at Tu-

tuka, where much of the massive ducting and pipe-work systems is fabricated — a strategy that has paid dividends through avoiding time-consuming transportation of large pieces by road.

The workshop is fully covered to allow all-weather working conditions, and structural steel pieces and prefabricated units can be quickly transported to the construction site on demand.

The first of Tutuka's six 600 MW generating sets has been producing commercially since March this year. The second boiler is scheduled to come on stream in December, and No 3 assembly, now in an advanced stage of construction, is due to undergo hydraulic tests in November. Work is at the same time under way on the supporting framework of the adjacent No 4 boiler.

SOUTH AFRICA

ALBERTS SEES URGENT NEED FOR METALS RESEARCH

Johannesburg THE CITIZEN in English 1 Oct 85 p 29

[Article by Madden Cole]

[Text]

SOUTH Africa would never be able to gain a sizeable share of the world iron and steel markets if the local industry was not backed by a vigorous research and development programme, Dr Louw Alberts, Director General of Mineral and Energy Affairs, said.

Dr Alberts, who was speaking at the opening of Foundry, Heat Treatment and Welding 85 at the National Exhibition Centre yesterday, said that the rest of the world was not standing still in this field.

"We are in strong competition with many developing countries who are attempting to exploit their mineral resources to the full and when it comes to higher beneficiation we will be competing with technically advanced nations in the northern hemisphere."

The concept of higher beneficiation of South African minerals was receiving increasing attention by leaders in the research world and appro-

priate government departments, Dr Alberts said.

He pointed out that what was needed to add more value to the country's minerals in terms of energy and skilled labour was an entrepreneurial spirit within the industrial ranks and a mineral policy that would encourage this approach.

Referring to research, Dr Alberts said that Japanese investment was about 0,8 percent of sales, while in Canada, a country comparable in many ways to South Africa, the figure was 0,4 percent. In South Africa the figure was only 0,1 percent.

"If the metals industry wants to retain its share of the materials market it will require a very careful in-depth study of the future requirements of that market to enable it to provide the most suitable metals and alloys.

"The overall challenges to the foundry industry are formidable but the opportunities in this country are still sufficiently luring," Dr Alberts said.

CSO: 3400/185

SOUTH AFRICA

INDUSTRIAL USE OF LASERS EXAMINED

Johannesburg ENGINEERING WEEK (High-Tech) in English 12 Sep 85 pp 7-11

[Excerpts]

Since the construction of the first laser in 1960, the use of this relatively new technology has spread widely and made its presence felt in a broad range of endeavours.

Lasers have become important and valuable tools in the whole of industry. However, in South Africa, much of the benefits of laser technology have yet to be realised and its use, as with many other high-technology products, is limited to a few forward-thinking companies.

The common laser types are Helium-neon (He-Ne), Nd:YAG, ion, CO<sub>2</sub>, pulsed dye, copper vapour, nitrogen, ruby, glass and semiconductor diode.

They all vary according to their size, efficiency, wavelength, output and applications.

Perhaps the most established and widely used is the He-Ne laser which is a continuous, visible beam used particularly in alignment, information processing, inspection, measurement and metrology.

They are used daily on construction sites, in mines and on the factory floor. These are applications extensively used worldwide but not much in South Africa outside of the mining industry.

The problem, says Julian Reed, sales director of Afgen, which supplies laser-based equipment for measurement and alignment in the construction and mining industries, lies largely in education.

While the market has developed to the point that 85% of mines in this country

use one or more lasers for such purposes as directional and grade alignment, construction certainly lags behind.

One mine, Secunda Colliery, has 92 laser guidance systems, but the market requires education and development.

"We started selling lasers in 1975 but even up until five years ago it was still difficult to convince people that it wasn't science fiction but a practical working tool," says Reed.

"In terms of market penetration, South Africa is certainly lagging behind the rest of the world."

In mines, the lasers help whenever a straight line is needed. And, in construction, the uses are similar but also creating planes, where levels are critical.

Bulldozers and graders equipped with sensors to the hydraulics systems can dig to precise depths required by the gradient, eliminating costly rework or filling.

Reed claims that lasers used in pipe laying can easily result in 25-50% productivity increases, and in trenching and earth moving it can be 40%.

"With accurate laser alignment, getting it right the first time becomes the norm," he says.

One earthmoving company in the northern Transvaal, says Reed, reported that the two beacon lasers used for machine control in construction grading, land levelling and contouring have cut machine operating times by 40%.

"The savings on operating times far outweigh the original cost of the laser equipment."

As an interesting aside, Afgen has developed numerous peripherals for its mining laser equipment. These products have proved so successful that the company is now actively developing an export market. In fact this year, exports have accounted for 40% of its turnover.

There are a number of trends in these relatively unsophisticated He-Ne lasers, although the product has been fully developed. The demands in construction and mining are for robust, reliable, lightweight and cheaper equipment.

Lasers in these sectors have advanced to the point that their use becomes practically an unskilled job because of the simplicity and robustness of the equipment which must be designed and built to survive harsh environments.

"The equipment we supply is more of a foreman's tool to increase productivity, enable faster, more accurate levels to be set and reduce mistakes," said Reed.

The applications for lasers in mining and construction alignment have probably all been fully developed. The future will bring smaller, more reliable and power efficient, and easier to use lasers.

Lasers in construction and mining solve a major South African problem — the shortage of skilled labour. Once an alignment laser has been set up, it needs only to be checked every day or so. It can also be operated by a relatively unskilled, costly-to-train worker.

Perhaps this factor, more than any other, is enough to make any construction company take a long, hard look at this application of the He-Ne laser.

Other applications of the He-Ne laser in alignment are in positioning timber logs accurately in a sawmill to ensure optimum cutting with the least wastage of time and material, and in positioning machinery on a factory floor.

Another very recent development has been the application of lasers to metrology. Traditional metrology systems are mechanical in nature.

Lasers offer the benefit of being a non-contact measuring medium and promise the micron levels of precision that are only possible with very large and expensive machinery.

In no other field can the presence of lasers be better felt than in the field of metal working which has been revolutionised over the past 10 years with the

introduction of computerised, numerically-controlled machines.

The application of lasers to CNC promises to further revolutionise the industry with its ease of use, flexibility of operation and tremendous cost benefits when applied to the right situation.

Leader in the field of laser cutting and the only real operator in this field in the country is Industrial Laser Systems.

Says managing director John Bond: "The beauty of lasers are that they are such easy tools to use. Because of *Star Wars* and James Bond, many had the concept that it was a space-age research tool, but it isn't.

"The laser has become a powerful cutting and drilling machine. It can cut accurately, quickly, silently and with a minimum amount of material wastage. Equally as important, it can cut virtually every known material from glass and plastics to wood, metals, natural and synthetic fibres and composites."

Bond accepts there is a strong conservative element in South African industry and a general wariness about the application of new, advanced technologies. But, he told High-Tech, there is no longer a place for non-progressive technology if local industrialists want to achieve optimum profitability and a competitive foothold in the international open market.

"Laser technology has become an inextricable and essential facet of modern industrial research, development and production in leading First World nations. The embryonic laser R & D days have long since passed and the challenge today is being focused on making laser equipment more efficient, more diverse and less expensive," says Bond.

"The growth of the laser market in countries like England, Japan and the USA has been comparable with the increasing application of specialist computer applications like CAD/CAM, CNC machinery, automated production as a whole and, of course, the broad concept of flexible manufacturing systems (FMS)."

Turning to the local scenario, Bond stresses there is a bright future for laser and allied technologies. Several progressive companies, large and small, have recognised this factor and have honoured their faith by investing in cost-effective laser hardware.

He claims a wide spectrum of industries stand to save thousands, if not millions, of rands in the long-term by investigating



and applying this technology. These industries include: car assembly plants, electronics, textiles, armaments, mining, construction, printing and publishing, and various mechanical engineering enterprises.

Bond states that the key advantages of laser technology include:

- More accurate tolerances;
- More efficient production rates;
- Cleaner working environments;
- Quieter working conditions;
- Reduced downtime, maintenance and repair;
- More flexible use of production hardware;
- Support of first-class, ongoing R & D;
- Greater machine safety, when applied correctly.

"When one outlines the manifold advantages of laser technology in plain industrial terms, one begins to wonder why the South African response has been comparatively slack. Admittedly, the capital costs of some laser equipment are relatively high at an initial glance, but one should not rashly attempt to analyse cold financial statistics," he says.

"The secret to the laser's success is simple if one is prepared to make prolonged investigations into the matter and weigh up the pros and cons in the long term."

The prolonged recession, skills shortages, high scrap rates (about 25% on average in South Africa), increasing international competition and the constant threat of sanctions are among the major contributing factors behind the initial response to laser technology in this country.

They will become more predominant factors in the future, says Bond.

"Within the next five to 10 years, lasers will be an integral facet of many industrial operations. Although industrialists are becoming more technology-orientated and cost-conscious, as well as being better trained, they have not yet encountered an industrial revolution along the lines of the Japanese, for example."

The flexibility of the laser lies in the fact that one machine can undertake cutting, welding, drilling, heat treatment and marking. Its cost-effectiveness comes from its versatility and the fact that the finished product usually requires no rework. It enables one-stop jobs — cuts are clean and welds result in no heat distortion.

The problem with alternative means of case hardening such as induction or boron nitriding is that the material is distorted. With induction hardening, the material has to be hardened to a depth of at least 3 mm because of twisting and bending in the metal.

The hardened material then has to be remachined to the correct tolerances, but the job is much longer and more expensive than would be needed to machine the soft material.

Lasers eliminate the rework required. The component can be machined to its final tolerances in the soft state and then case-hardened without getting a micron change in the material.

One of the country's largest sign manufacturers recently commissioned its first laser cutting machine in Johannesburg and has already reported some significant costs savings, according to Bond.

Using a large machine made by Control Lasers of the UK and commissioned by ILS, the sign company has claimed that a conventional profiling job using 36 men and taking hours can now be executed in a mere four minutes with only two men assisting.

Aside from these time-savings, the sign manufacturer is achieving finer engineering tolerances and a considerably reduced scrap rate. Amortisation alone, says Bond, can be achieved within two years on scrap savings.

Austin-Rover in the UK installed a £500 000 laser for cutting panels for prototype car models. The manufacture of prototypes involves an expenditure of millions of pounds and the speed and flexibility of the operation resulted in the investment paying for itself in an incredible two weeks.

There are limitations to the present level of technology. Lasers are power hungry — efficiency in a CO<sub>2</sub> laser is typically about 11% and to get 2,5 kW out, about 40 kVa needs to be put in.

Another problem is the depth of cut with a 2,5-kW laser is only 15 mm. However, these are limitations and not drawbacks.

The biggest problem is applying the laser beam to the workpiece. Major development work is being done to apply the laser to the workpiece by means of a fibre-optic medium.

Applying a cutting beam to fibre optics technology will allow the technology to

be fitted on robots, bringing even more flexibility to the technology.

A further, much talked about development has been the marrying of new laser technology with new skills in materials manufacture — that of fibre optics.

Here, the ability to manufacture extremely pure glass has resulted in a booming growth sector in the communications industry.

In short, fibre-optic communication converts electrical energy to light energy, which is then propagated through an optical fibre, projected on to a light detector and converted back into electrical energy.

Like any new technology, fibre optics must be examined carefully to determine its cost-effectiveness, in particular installations. Nevertheless, fibre-optic cables offer unique performance capabilities in many applications.

Aside from their cost, fibre-optic cables offer superior features to those of twisted-pair or coaxial cables. The biggest advantage is its bandwidth, resulting in a high information-carrying capacity, its resistance to electromagnetic noise, and space savings.

Holography is no longer something you see at the Planetarium, it has become a serious production tool. A recent development has been to apply it to industrial design and testing uses.

The applications are numerous: Vibration visualisation; revealing structural deformations, determining stress and thermal strains, effects of pressure; monitoring erosion and corrosion. It can see invisible defects, check voids or debonds, locate cracks, visualise flow, probe with impact pulses, recognise patterns and can be used in process control, particle sizing, optical

elements and, finally, commercial displays.

Most engineering applications of holography make use of the ability to record two slightly different scenes and display the minute difference between them.

This powerful technique, called, more correctly, holographic interferometry, is becoming an invaluable aid in engineering design, testing, quality control, and analysis.

This technology also stands to benefit from fibre-optics technology. A team of engineers in the USA aims to transmit coded signals representing holograms along thin cables of optical fibre.

With this techniques, the researchers think they will be able to obtain holograms of parts of engineering structures to which access is difficult. For example, the holograms could be piped along the cable from the interior of a hot engine.

To take holograms of, say, a cylinder ring in a car engine while the ring is subjected to stresses inside the engine is virtually impossible with current technology. Making it possible to test such engineering articles while they are in use will represent a significant advance.

While the applications of laser technology continue to grow, the message that can be gained from the current state is that this is a widely and successfully-applied technology on the international front.

If South African industry is to grow, it must, as with other advanced technologies, be very careful of dismissing it as inappropriate or unsuitable. For, despite the high-tech image, lasers are useful, proven production tools with their own particular, cost-effective benefits.

CSO: 3400/185

SOUTH AFRICA

SAPO LIMITS CONTRACTS TO SA CABLE COMPANIES

Johannesburg ENGINEERING WEEK in English 12 Sep 85 p 6

[Text]

On 1 October, the lucrative Post Office account for the supply of fibre-optics cable falls open to tender, as Altech group company STC's three-year supply agreement comes to a close.

SAPO plans to spend about R160-million on optical-fibre cable for its telecommunications facilities by the end of 1988. However, in a bid to limit reliance on imports and to stimulate local manufacturing, the Post Office has limited contracts to those companies with local optical cable manufacturing facilities.

That means that, for the moment, at least, there are only two companies qualified to tender — Aberdare Cables, another Altech Group company, with its recently installed cabling plant in Port Elizabeth, and ATC (SA) with its optical-fibre drawing and cabling facility in Brits.

SAPO has a long-term plan to install the latest in optical-fibre telecommunications technology in the form of a nationwide telecommunications network linking Durban, Johannesburg, Port Elizabeth and Cape Town.

The network is known as Diginet.

Diginet consists of 12-fibre cables with a capacity to carry nearly 12 000 conversations with 1 920 calls on each pair of fibres.

SAPO will buy about 26 900 km of optical fibre in the current financial year at an estimated cost of about R50-million. In the 1987/88 financial year it will need about 32 000 km.

"After that, it is difficult to say, as our requirements will depend on available finances, but we expect it to stabilise at about 35-40 000 km a year," said Dawie Malan, senior director of transmissions.

SAPO's telecommunications requirements are estimated to be about 90% of the total current market for optical fibre. STC's three-year supply agreement to supply SAPO with optical-fibre and peripheral equipment falls away at the end of September.

In future, SAPO's requirements for optical-fibre cable "will be obtained from approved local manufacturers only".

There is strong competition between the two contenders. ATC held the official opening of its R9-million optical-fibre drawing plant in Brits on 15 August and announced that it would spend a further R11-million to double its fibre-drawing capacity.

On the same day, Aberdare announced that it had already gone into production at its R8-million optical-fibre cabling plant in Port Elizabeth.

CSO: 3400/185

## PUMPING SYSTEMS SUPPLY POTABLE WATER TO PWVS REGION

Johannesburg THE SOUTH AFRICAN MECHANICAL ENGINEER in English Aug 85  
pp 324-331

[Article by Jimmy Gardiner]

[Text]

The Rand Water Board supplies potable water to the Witwatersrand, the major industrial development and highest population density area in the PWVS region. Typically the pumps used for the supply of water range in capacity to 300 Mℓ/d at generated heads up to 380 m. The Witwatersrand is approximately 50 km from the Vaal River source and over 300 m higher.

In the following article Jimmy Gardiner gives a review of pumps which are being used by the Rand Water Board to supply 2 000 Mℓ/d of potable water to consumers in the PWVS region. During peak demands this figure exceeds 3 000 Mℓ/d.

Mr Gardiner is Assistant Chief Engineer, pipe fabrication, of the Rand Water Board.

### Function of pumping machinery

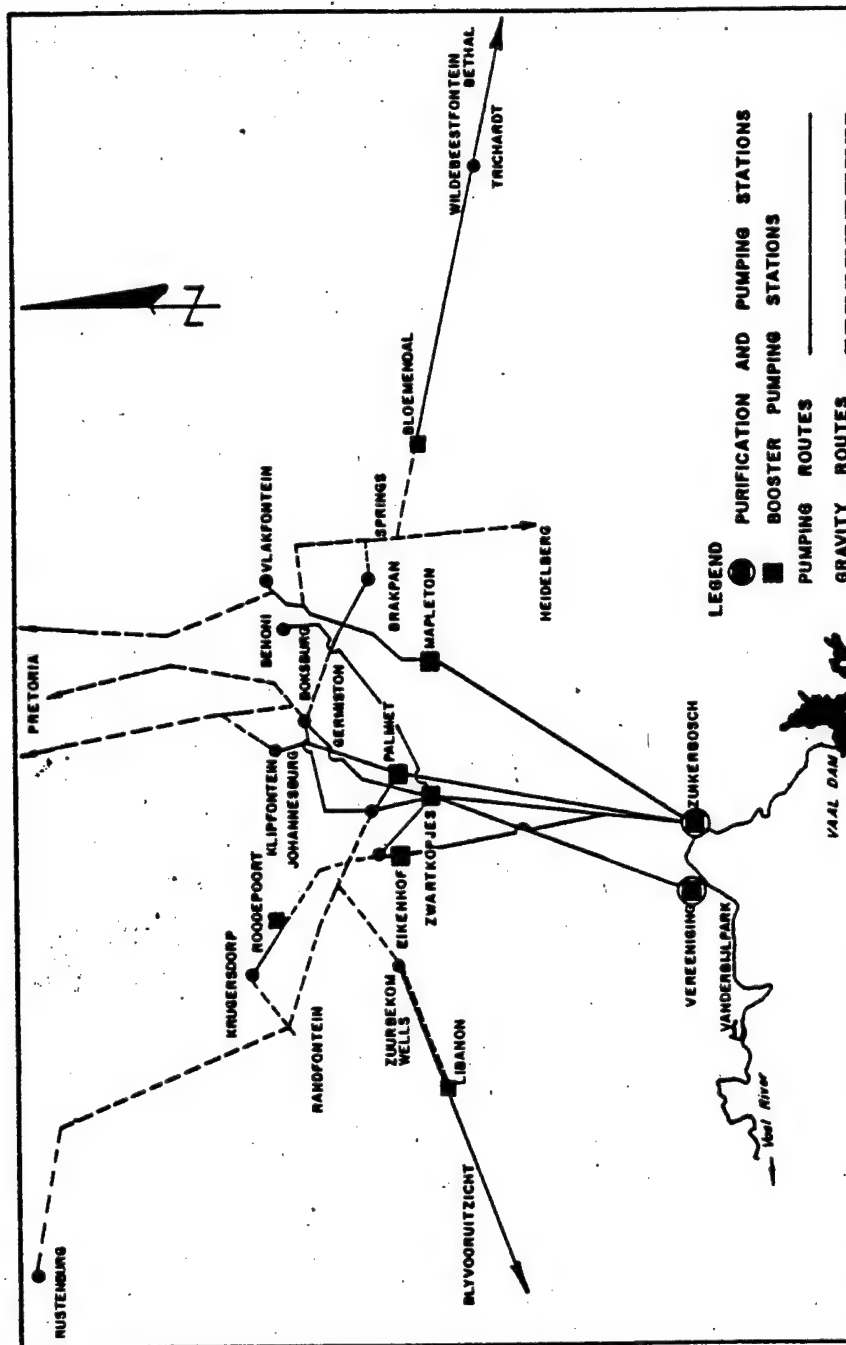
#### Pumping to provide a potable water supply

Figure 1 shows diagrammatically the river purification and pumping stations, the routes of pumping mains, the booster pumping stations and the distribution pipelines to the extremities of the Rand Water Board limits of supply.

The major industrial development and the highest population density in the PWVS region is on the Witwatersrand which is approximately 50 km from the Vaal River source and over 300 m higher. The area is supplied with potable water by the Rand Water Board and typically pumps for the supply of water range in capacity to 300 megalitres per day (Mℓ/d) at generated heads up to 380 m. A typical profile of a pumping

system is shown in Figure 2. Water is pumped from the river stations to the foothills of the elevated area and booster pumping stations deliver the water to the distribution system. The storage of water in the area where it is consumed is achieved only by the building of costly reservoirs and the storage capacity is therefore limited and great importance is placed on the continuity of supply from pumping machinery and the delivery pipelines.

Currently approximately 2 000 Mℓ/d of potable water is supplied to consumers and the peak demands exceed 3 000 Mℓ/d. Most of the water is delivered under pumping conditions over a distance of more than 50 kilometres to a system of reservoirs on strategically placed sites along the Witwatersrand. A



**Figure 1**  
Basic diagram of pumping and distribution pipelines.

certain amount of the water which is delivered to the Witwatersrand gravitates to more distant consumers in lower-lying areas notably the Pretoria area and Rustenburg from the system of storage reservoirs on the Witwatersrand that serve in supplying peak demands and to supply consumers in cases of emergency. About 90 per cent of the water put into supply is therefore delivered to the high-lying area and the total pumping head required for this duty approaches 500 m. The power demand of the pumping system varies between 115 MW in normal demand periods to 220 MW during high demand periods.

The location of the majority of the consumers on or beyond the remote and high-lying Witwatersrand area relative to the water source is unusual when compared with most developed areas in the world. The pumping duty to be met therefore involves high expenditure of energy and for this reason it is important that the pumping installations for the delivery of water should be of high efficiency.

The main route—Figure 2—is such that there is a gradual rise along the greater part of the route followed by a rapid and marked rise from the foothills of the ridge forming the Witwatersrand up to the highest points where the distribution reservoirs are sited. Along the initial and greater lengths of the pumping mains there is a gradual decrease in pipeline pressure as static height is gained whereas from the foothills onward there is a rapid decrease in pipeline pressure as the elevation increases.

Pumping in one single lift from the river stations to the distribution reservoirs would entail a pumping head exceeding 500 m and high pressure pumping mains over the greater part of the length up to the foothills and pressure would reduce substantially only thereafter. The prohibitive cost of such long lengths of high capacity and high pressure pumping mains dictated that relief pumping by booster stations be adopted. The obvious siting of a booster pumping station is at the start of the foothills.

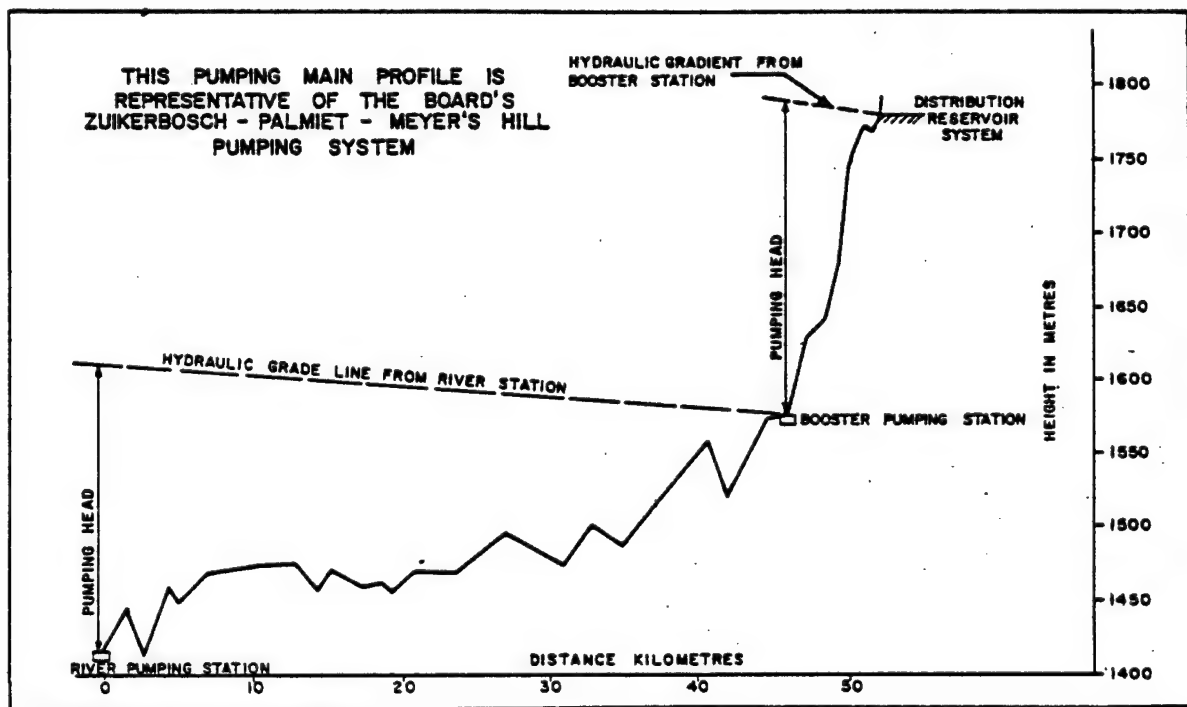


Figure 2  
Typical profile of a pumping main.

## Pumps

The static rise of about 150 metres from the river pumping stations to the foothills of the Witwatersrand when added to the friction head loss in this relatively long pipeline system represents a pumping head of about 190 metres from the river stations and no re-lift facility along this part of the pipeline route is necessary.

The demand for water by consumers in normal unrestricted periods is increasing at about 5,5 per cent per annum and consequently additional pumping plants with associated additional pumping mains have to be provided at relatively frequent intervals. As the distribution network is situated remote from the major source of water, the Vaal River, long pumping mains are necessary and therefore frictional head loss is a significant factor and must be kept to an economic

minimum. An economic study is undertaken in each case to establish the optimum size of the new pumping main such that additional capital cost on pipe size to reduce running costs does not exceed the capitalised value of any saving in running costs that is to be achieved.

### Choice of pumps

The relatively long pumping mains give rise to significant changes in the pumping head with changes in the pumping rate. The effect of friction is shown in the shape of a typical pipeline characteristic curve in Figure 3 and pump sets with provision for varying the duty are therefore desirable.

The individual pump sets at the river and booster pumping stations range in capacity from 50 to 300 Mℓ/d. Throughout the range of sizes both steam turbine and electric motor driven pump sets are used. The range of capacities provides a

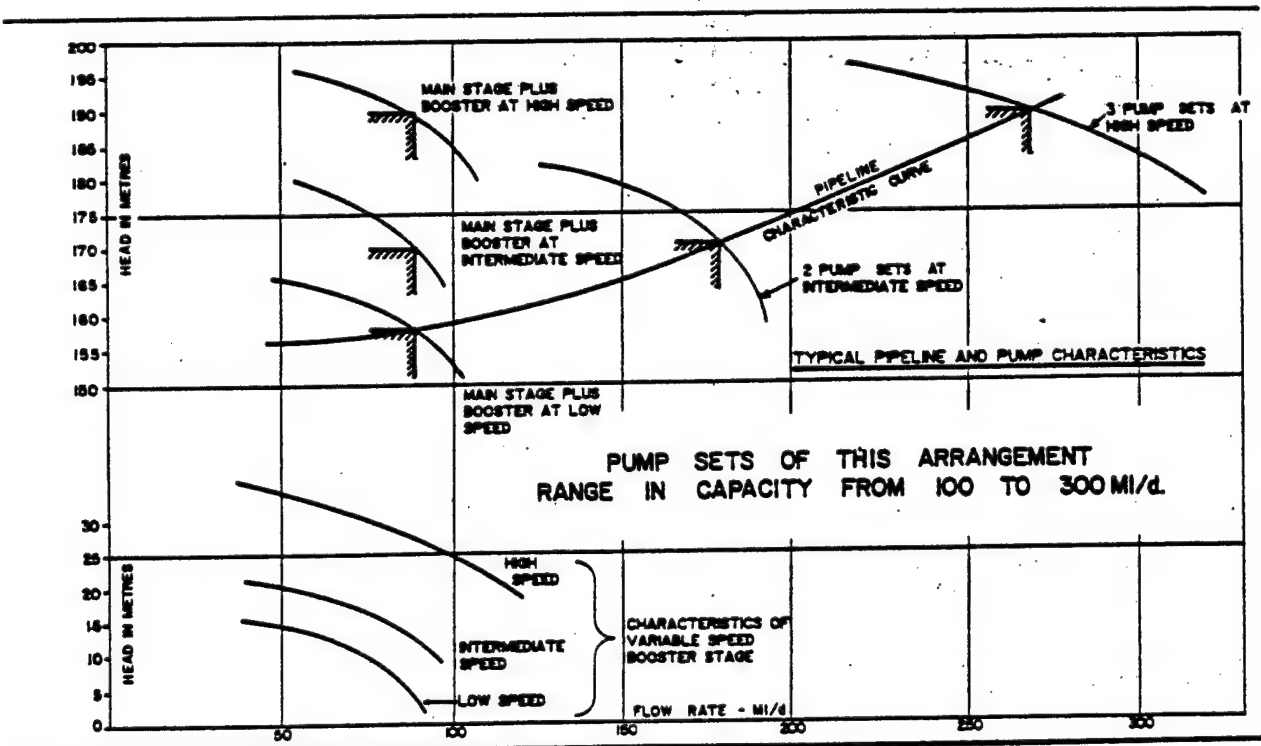


Figure 3  
Typical characteristics for long pumping main and electric motor driven pump sets.

useful flexibility for meeting load variations and in all cases high efficiency is important.

Approximately 35 per cent of the Board's present installed pumping machinery comprises steam turbine driven pump sets, the largest of which is of 200 Mℓ/d capacity and the balance of the total installed capacity of pumping plant is electric motor driven and the largest sets are of 300 Mℓ/d capacity. The power demand of the largest electric motor driven pump set can rise to some 9 000 kW at maximum duty.

In selecting an electric motor drive the highest motor efficiency is an important consideration and accordingly it has been the policy to use fixed speed induction motors wherever possible. The electric power is purchased and the tariff in most cases is based on kW demand and not kVA demand so that use of synchronous motors in order to achieve the highest power factor has not been justifiable.

In an effort to limit the power of the electric motors and to use the simplest and most efficient type, the system of arranging pump sets as separate single stage pumps each driven by its own direct-on-line starting squirrel cage induction motor was adopted. The power demand for starting such sets is reduced by starting the set stage-by-stage with timed delays between each start. Such electric motor driven pump sets have been used extensively by the Board for medium to high head pumping duties.

In order to render the electric motor driven pump sets suitable for pumping at various heads when the quantity pumped and consequently the pipeline friction head is varied, a speed regulating facility was adopted. This was achieved by the use of a variable speed first stage in each case and to obtain the highest overall efficiency in a pump set employing an electric motor driven variable speed first stage, the power demand of the first stage has been kept to the minimum. The reasons for this are twofold; firstly the first stage operates at below peak efficiency at speeds other than the optimum speed for the pump and secondly the variable speed electric motor is somewhat less efficient than a fixed speed motor of the same size.

In each case where variable speed first stages have been adopted the power of this stage has been sized-down to the minimum to meet the head range requirements. The arrangement of a typical river station pumping installation employing pump sets with a variable speed first stage are shown in Figure 3. The shape of the pipeline characteristic curve shows the effect of friction and the various heads required when running from one to three pumps is illustrated. The curves show that the overall pump set characteristics are such that the pumping head requirements are met by operation of the first stage at the required speed.

The high expenditure of energy to meet the pumping duty renders it important from operating cost considerations that high efficiency be achieved. When the purchase of new pumping plant is planned the specifications take account of the quantities required and the most economic overall arrangement in respect of power source, capacity and location of pumps and the pipeline sizes. In particular the requirement of high efficiency is stressed in the specifications and the tendered prices are adjusted according to the guaranteed power demand before the adjudication and awarding of contracts. The lowest adjusted tender is accepted provided it qualifies technically, provides high quality features and is in accordance with all the specified requirements.

The pumping machinery must render efficient service throughout its operational life and preference is given to equipment that includes features that would ensure sustained efficiency. The optimum design of the pumps is the best assurance in this regard and an indication of the speed and number of stages is generally provided, the tenderer being invited to deviate from the specified arrangement if full details of the merits of any such alternative involving evaluation of the suction requirements, head, quantities and the specific speed per stage is assessed to ensure that satisfactory operation and the guaranteed efficiency is feasible. The materials and methods of construction are examined, experience being the guide to their suitability.



For many years bronze-fitted pumps have been used for pumping water having free chlorine of not more than 0,5 milligrams per litre. Over recent years residual free chlorine in the water has been gradually increased to ensure adequate disinfection of water that may have originated from polluted sources and experience indicates that the bronzes are being attacked resulting in increased friction due to roughening of the impeller shrouds and water passages and increased leakage loss between the impeller necks and the casing rings. Stainless steel impellers are now preferred and the casing rings are being supplied in corrosion and erosion resistant materials to ensure minimum leakage loss for a long period.

The majority of pumps use conventional packed glands although mechanical seals are considered under contracts for new plant and certain of those accepted have been used with success. Marked wear has occurred on bronze gland sleeves and for this application ceramic coated sleeves have proved to be effective and long-lasting. Ceramic coatings have been used successfully on impeller neck rings and casing rings and spare parts made of superior materials are now being purchased and during periodic overhauls every effort is made to restore or improve efficiency.

#### Choice of prime movers

Pumping large quantities of water at relatively high heads demands a large energy source. A 90 Mℓ/d pump generating a head of 3 500 kPa requires approximately a 4 800 kW prime mover, while a pump delivering 300 Mℓ/d at a generated head of 2 100 kPa requires a prime mover of 9 000 kW. The cost of energy is therefore a major consideration in the choice of a prime mover and the advantages and disadvantages of various drives in use at large pumping installations in South Africa are discussed as follows:

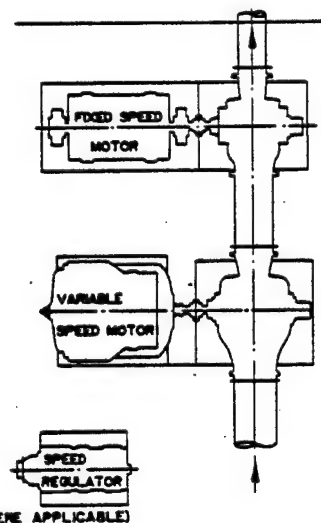
#### Squirrel cage electric motors

A constant speed squirrel cage electric motor in conjunction with a direct-on-line starter is the simplest and one of the most reliable types of prime mover available for large units. The associated electrical switchgear is simple and reliable but because of the high starting current required (4,5 times the full load current) there could be a limit placed by a power supply authority on the unit size allowed for direct-on-line starting.

Maintenance is not complicated and the starting current could be reduced to  $\pm 2,6$  times full load current by using a star-delta starter but this measure is not practised by the Board.

#### Electric variable speed drives

Variable speed electric motor drives have become efficient since the appearance of the NS induction regulator drives with commutator motor. Variable speed drives on pumping systems that are operating below the designed system duty point for long periods can save energy significantly and NS drives are used in a number of pumping systems for that purpose. Disadvantages of this type of



**Figure 4**  
Two-stage pump set with variable speed first stage.

drive are the large number of spring-loaded brushes that need to be adjusted, commutator maintained, and any failure of the induction regulator puts the whole drive out of service.

In 1974 the first variable speed drives using the static Kramer system in conjunction with slipring motors were put into service. The efficiency of this drive is marginally higher than that of the NS induction regulator drive and, in addition, failure of the speed regulating equipment on a Kramer system does not affect the availability of the slipring motor that can still be used as a fixed speed motor—or even as a resistance controlled variable speed drive at low efficiency. Routine maintenance of a static Kramer drive is also considerably less than on a NS induction regulator drive.

Disadvantages on the static Kramer drive can arise from the need to provide harmonic filters and power factor correction and, in addition, based on experience gained in South Africa, teething problems took a long time to resolve. However, both electric variable speed systems described are giving satisfactory service.

#### **Electric motor-drives**

The development of electric motor-drives using the principles of frequency variation are being watched with interest. However, so far no motor of this type has been tried by the Board.

#### **Steam turbine drives**

Steam turbine drives offer excellent flexibility for pumps because of the ability to run at variable speeds. Overloading cannot occur since this will automatically result in speed reduction. Any steam turbine is not necessarily suitable as a variable speed pump drive as it is possible for turbine blades to suffer from vibration fatigue due to resonance caused by operating at certain speeds in conjunction with a centrifugal pump. The speed range for the operational requirements of a steam-turbine-driven pump needs to be determined carefully once pump characteristics are known, to enable the turbine manufacturer to do

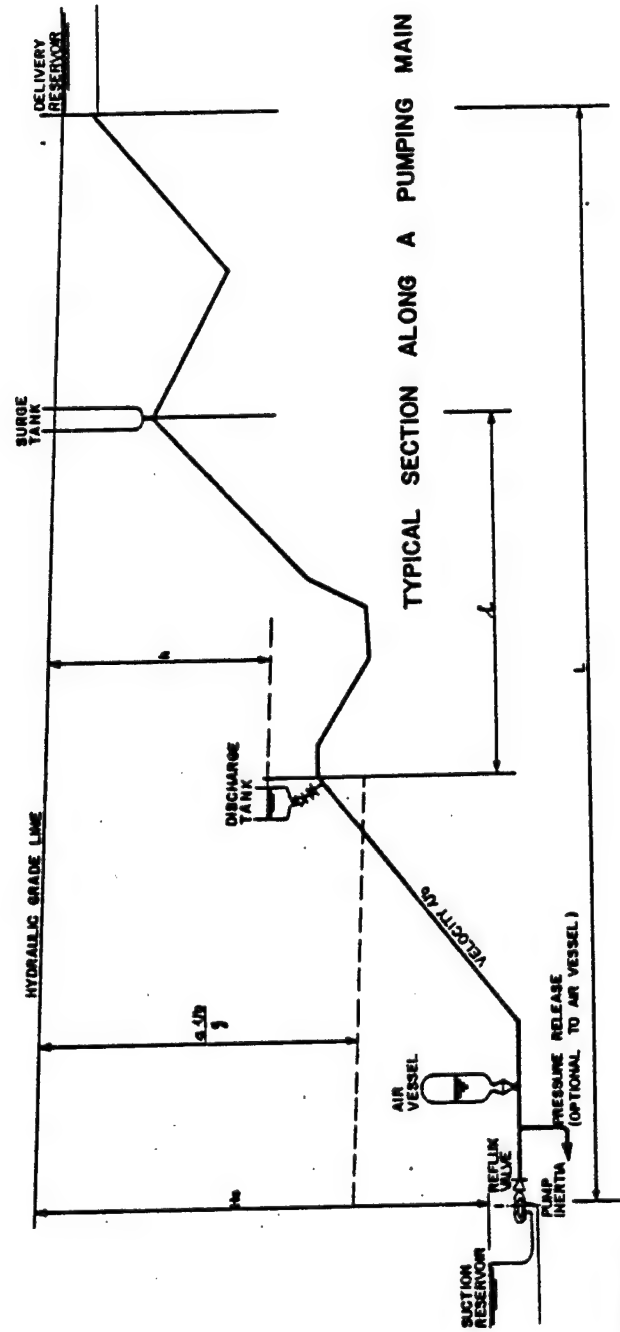
an adequate blade design. Generally, some combination of shrouding, lacing wires and damping wires have to be fitted to turbine blades in a turbine operating under variable speed conditions.

In South Africa with its large coal reserves, steam generation in areas close to coal mines is relatively inexpensive. Disadvantages in steam-turbine-drives are the cost of the associated boiler and coal and ash handling plant, the large operating staff required and the high cost of maintenance on the ancillary equipment. The Board has learned that because of escalation in the cost of steam generating plant and increase in long-term interest rates, the cost of boilers and steam turbines has become inflated to the extent that it cannot in all cases be redeemed by the saving in energy costs. It is, however, still economic to operate all the existing steam prime movers. The steam plant serves as a sound emergency back-up to the electricity supply network and good use is made of the steam plant to take up variations in load while the electric motor driven pumps are used as far as possible as base load plant. The higher the load factor the lower the unit cost of electricity.

#### **A typical delivery pipeline**

The most recently installed long delivery pipeline from a river pumping station is that completed during 1984 between Zuikerbosch and Palmiet pumping stations comprising 2300 mm internal diameter pipes some of which are of steel and others of prestressed concrete. The pipeline operates at heads of up to 250 m allowing for surge and at flow rates of up to 800 Mℓ/d.

Currently a delivery pipeline from Vereeniging to Eikenhof pumping stations is being designed that will be of the same diameter and for a similar duty. The length of the pipeline will be 50 km and the estimated cost is R1 500 per metre that will result in a total capital outlay of some R75-million.



**Figure 5**  
Typical selection of water hammer protection facilities.

### **Piping arrangements and water hammer protection**

At a typical pumphouse each pump is arranged to receive its water from a suction header or manifold, a relatively short straight run of piping is arranged to lead the water to the pump under good flow conditions; a suction isolating valve is provided in this length and close to the manifold. Inter-stage piping in the case of separate stages incorporate a through-bolted closer joint to facilitate easy removal and reinstallation if required during overhauls.

The delivery pipeline from each pump set is made sufficiently long to accommodate a water meter as it is the policy to provide accurate metering on each pump set to facilitate satisfactory operation and the carrying out of routine performance tests. Delivery lines are connected into a delivery header or manifold, a reflux and delivery valve being provided shortly before the connecting point in most cases. In some recent applications an automatic closing delivery valve has been employed to do away with a reflux valve and to reduce the water hammer effect on shut down.

Water hammer protection is an essential feature in the delivery pipeline system from the pumping stations and installations employing pump inertia, air vessels, pressure release valves, surge tanks and discharge tanks have been adopted. A typical system employing the above protective devices is shown in Figure 5 and for any particular pumping system a selection of the equipment is made to suit the circumstances.

In a typical installation utilising pressure release valves the delivery header system is equipped with two release valves that discharge water from the delivery header to the balancing reservoir serving the suction system at the pumping station. Each release valve is equipped with a hydraulic power system including an accumulator that opens and closes the release valve when circumstances require this. The open-and-close cycle can be initiated either by interruption in electrical power supply or by marked re-

duction of the header pressure. Both modes of operation result in the de-energising of a solenoid valve to initiate one cycle of the release valve from closed to open and back to the closed position. The time for opening and the time for closing can be adjusted and both of these times added together determine the full cycle time corresponding to the surge characteristic of the pipeline system being protected.

Dangers of high water hammer peak pressures arise when pumping is interrupted by the simultaneous tripping of a number of pump sets. This condition is particularly applicable in the event of a general power failure. However, should simultaneous tripping be caused by a condition other than a general power failure, the protective cycle will be initiated by the drop in pressure.

### **The economic implications of power costs and consequently of performance**

It has been indicated that the power demand of a large pump set is of the order of 9 000 kW. An increase in efficiency of one per cent could reduce the power demand by some 90 kW. The cost of power (at 90 per cent load factor) at a typical pumping station may be taken as 4c/kWh. The operation of a machine saving 90 kW at an annual utilisation factor of 67 per cent will reduce energy cost by  $R0,04 \times ,67 \times 24 \times 365 \times 90 = R21\ 120$  per annum.

Because of the long-term value of savings in power demand it is essential that a supplier of pumps guarantees performance. Public bodies in South Africa require a performance guarantee and in adjudicating a tender they adjust the tender price to give credit to high efficiency pumping plant and require a tenderer to guarantee the power demand in kW at the specified duty point and call for a penalty to be deducted from the contract price should the demand be higher than that guaranteed. The guarantee has to cover the pump set complete with prime mover and the main contractor is made to be responsible

since division of responsibility between main contractor and sub-contractor is not recognised.

Although it is not always practical to have a pump layout that will conform to the requirements of a recognised test code the user specified site tests and for that purpose a site layout drawing forms part of the specification to enable tenderers to allow in their guarantee for any performance adjustments that may be required due to site layout. The main problem experienced is the determination of the flow rate and in this respect calibration of flow devices is done or alternatively orifices are designed specifically for test purposes. If possible a pump is isolated on a reservoir that is surveyed and the test then conducted after first having done a leakage test on the system. Accuracy of high quality test pressure gauges is checked by dead weight testing equipment and where practicable suction heads are taken by means of manometers and substandard instruments are used for all electrical readings.

Not all suppliers of pumps have facilities to carry out work tests on large pump sets and invariably there are practical problems in respect of delivery programmes that makes it impossible to carry out a combined works test with the pump and its associated motor. Where suppliers have facilities, a witnessed works test on a pump is preferred. The results are used as a check on site tests since the performance guarantee has to be verified by the latter.

A full works test on each motor is always required as this is required to pro-

vide information to construct the circle diagram and to compute the starting current, torque and motor efficiency.

Although the layout of pumps in a pumping station seldom permits full conformity with the requirements of the test code, results obtained have seldom deviated significantly from those obtained at works tests. Measurement of power input by means of substandard instruments is simple and the same applies to pressure gauge readings provided reasonable lengths of pipe diameters are available upstream and downstream from the pump branches.

It is, however, seldom possible to allow the minimum required distances upstream of flow measuring venturis or orifices and in this respect it has been found that provision of a flow straightener after a bend upstream of a venturi serves to smooth out vortex currents and improves entrance conditions. Experience has shown that poor performance during site tests as a result of site conditions that influenced the test results have been the exception. Generally poor performance was rectified by the contractor carrying out a modification of some kind with a consequent improvement in the performance established at site.

#### Acknowledgment

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#### Reference

"Function and choice of pumping machinery". A paper prepared for the International Water Supply Association, Tunis, 1984, by E Myburgh and J L Gardiner

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SOUTH AFRICA

SATS MECHANICAL ENGINEERING CHIEF INTERVIEWED

Johannesburg THE SOUTH AFRICAN MECHANICAL ENGINEER in English Sep 85  
pp 382-383

[Interview with Dr Herbert Scheffel, Chief Mechanical Engineer of SA Transport Services, by Bob Robinson and Arlene Kaljee]

[Text]

**South African railway equipment manufacturers may be in serious trouble. Many have gone under and some companies are changing their marketing strategies because of SATS requirements for high technology.**

**In an exclusive interview with Dr Herbert Scheffel, Chief Mechanical Engineer of SA Transport Services, it was ascertained that local manufacturing companies have not been doing enough research and development in the high technology field which, for example, is required for electric traction, and are finding it difficult to provide the necessary design and manufacturing capabilities.**

**Another important fact which emerged was that SATS is now concentrating on the design and development of new rolling stock and equipment for the efficient and speedy transport of high-rated goods.**

**The interview took place in Dr Scheffel's office at SA Transport Services in Pretoria.**

**Dr Scheffel, your Department has been involved for some time now in the design and development of high technology sophisticated rolling stock. Can the local manufacturing industry manufacture this equipment?**

**Yes and no. If we talk about, for example, electric traction, the South African manufacturing industry has been finding it difficult to adapt to modern design technology without allowing the local content percentage to drop. However, SATS is forced to specify modern technology in order to remain competitive in the transport field.**

**Can you tell us more about your Departments' research and support facilities which have been developed for analysis and testing of more complex detail designs?**

**Our test facilities, including buildings, constitute a capital investment of R9-million, and staff employed directly on development design exceeds 120, including engineers, scientists, engineering assistants, draughtsmen and technicians.**

For our rolling stock, our facilities, which are situated at the Koedoespoort testing centre, compare very favourably with any other in the world of the same size. At the centre of our testing centre is an impact ramp and a testing rig capable of testing vehicle structures to 350 tons in tension and 400 tons in compression. Two hundred measurements can be taken simultaneously. Only two other companies in South Africa, Union Carriage and Dorbyl Railway Products, have similar testing rigs, but which are less sophisticated.

Apart from the above static testing rig, we also have a hydraulic fatigue testing machine with 16 actuators. In addition we have a photo-elastic bench, high-speed camera and some specialised instrumentation for investigation and research into the mechanics of rail/wheel interaction. A metallurgical and chemical laboratory for testing of materials and fracture analysis is a further invaluable asset.

We also provide a service to the rolling stock industry and other government departments as well as companies and railways of neighbouring countries by opening up this facility to them for testing purposes.

**Could you highlight some of the successes of local design by your Department which have been made possible by this testing facility?**

Our successes have been mainly in the field of wagon design, mostly because of the need for superior technical design input for the manufacture of wagons. Major achievements in this field are the development of the self-steering bogie, initially for good vehicles, subsequently for passenger vehicles and now for motorised vehicles including locomotives; and the design and construction of a monocoque design coal gondola wagon (CCL5) with the unique load/tare ratio of 4,2 : 1. The tare weight for a coal wagon with a carrying capacity of 84 tons is 20 tons. This is a considerable improvement over the previous design with a load/tare ratio of 2,7 : 1.

**Mention is made in a lecture which was presented at the Institution of Mechanical Engineers (London) that a bogie similar to yours will be tested for the London Underground. Can you comment on this as well as whether the Scheffel bogie has been adopted by any other railway systems in the world?**

The bogie which is being tested for the London Underground belongs to our competitors, British Rail, who claim that their development is based on prior patents.

At this stage the Vienna Railway is the only other railway which has actually placed orders for motorised bogies. Many others have shown interest as well. The goods bogies, on the other hand, are already in operation in approximately ten countries on four continents.

**Your Metroblitz superfast Johannesburg-Pretoria train was initially very successful. Why was this project dropped and are there any plans to get it reinstated?**

The Metroblitz was basically a technical experiment to see whether it is technically feasible and whether changes would have to be made to the track and signalling systems if high speeds are to be introduced.

After all the facts had been considered it was concluded that it would be more economically advantageous to upgrade the speed of all trains on certain lines by making adjustments to those lines, as experience showed that a single train with a speed much higher than the other trains can have a detrimental effect on line capacity.

**A major project was the allocation of a contract for a new generation of trainsets to Dorbyl Railway Products, which is a contractual partnership between Dorbyl and Hitachi. Will Hitachi be manufacturing any equipment, such as traction motors, locally?**

GEC Traction will be manufacturing some of the motors according to Hitachi design. In fact, we understand that GEC Traction has adjusted its marketing strategy to tender for the manufacture of equipment of other major suppliers as well.

**What was your Department's involvement at Sentrarand?**

All the development of specifications, design and tests were based on research and data which were supplied by our department. Yes, we were greatly involved in the project.

**We have heard that something went wrong with the retarders which were supplied by a local company. Can you comment on this please?**

After intensive testing we found a defect in the piston which was the source of the problem. After a lot of development work in our testing centre we assisted the company in overcoming the problem to a large extent.

**What do you see as major challenges for the local railway equipment manufacturing industry in future?**

SATS has for the last fifteen years mostly been occupied with heavy haul equipment for the transport of coal and minerals. The transport of these commodities became more efficient through the application of increased axle loads (18,5 to 26 tons). This demand having been met to a large extent, the emphasis is now shifting towards the design and development of new rolling stock and equipment for low density high-rated traffic.

Our Department will be responsible for the building of a total of 9 000 mini-containers at a cost of R25-million this year. R21-million has been voted in addition to this figure for automatic sorting equipment and conversion of wagons.

**How large is the workshop facility which is controlled by your Department?**

We have eight workshops in all. The biggest is Koedoespoort in Pretoria with 3 000 people. Next in line are the Bloemfontein, Durban and Salt River workshops with approximately 2 500 employees each, followed by Uitenhage with 2 000 and Germiston with 1 800 employees. There are also workshops at East London (700 employees) and Pietermaritzburg (600 employees). The Germiston workshop controls our three welding depots at Beaconsfield, Danskraal and Elandsfontein.

**Can you give us some idea of the number of locomotives, wagons and coaches which are repaired and maintained by the workshops?**

We are looking after approximately 4 600 locomotives of which more than 49 per cent are electrical units; our wagon fleet consists of 174 000 and our coach fleet 10 733 units.

**What is SATS's policy in regard to increasing its workshop facilities? Will it, for instance, be moving towards greater privatisation?**

We do not need to increase our workshop facilities in the foreseeable future as they have sufficient capacity to serve both our present and future commitments. Our wagon stock has not increased at all over the last couple of years because of our policy to go for a higher degree of specialised design with increased capacities, shorter turnaround times and lower maintenance requirements. In fact we see our total rolling stock decreasing in future when the steam locomotives, older wagons and timber coaches are phased out.

There is no question of private industry competing with us over maintenance and repair of our rolling stock as they are not really geared up for repair work.



Can you give us an indication of the engineering staff in your department?

We have a total of 17 000 employees in the Department including administrative staff. Of this figure 2 760 are artisans, 1 500 apprentices, 183 mechanical engineering assistants and 209 mechanical engineers. 8 000 of the 17 000 total are black and 9 000 white employees.

SATS gives great priority to the training of its manpower. Can you tell us more about how this is being implemented.

We have special schemes including bursaries to encourage training at Universities and Technikons. We also have apprentice schools at every depot and special supervisor training courses.

If the economy turns up, do you find it difficult to retain your skilled workers?

We find at all times—but more so during good times—that we lose a large percentage of apprentices after they have qualified.

Is registration as a professional engineer a requirement for promotion above certain levels in your department?

Yes, it is. This ruling has just come into effect.

How many professional engineers and engineers-in-training have you got in your department?

The number of professional engineers is 67 and engineers-in-training 14. This number is, however, very fluid because of the above ruling which has just come into effect and which has resulted in a flood of applications which will be reaching SACPE soon.

What is SATS's view in regard to engineers-in-training being prepared for registration?

SATS policy is that engineers-in-training should be given every opportunity to meet the full requirements for registration with SACPE. We in fact have a recognised training scheme which is prescribed for our engineers-in-training. But it is obvious, as in the case with the practical application of any other programme, that the outcome will depend on the character and outlook of the engineer-in-training to his job.

CSO: 3400/185

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SOUTH AFRICA

TRANSPORT POLICY RECOMMENDATIONS EXAMINED

Johannesburg THE SOUTH AFRICAN MECHANICAL ENGINEER in English Sep 85  
pp 379-380

[Text]

Recommendations following an in-depth study of South Africa's transport policy will be tabled in Parliament in the form of draft bills during 1986. This was announced by Hendrik Schoeman, Minister of Transport during his opening address to the National Transportation Convention. The Convention was held from 29 July to 2 August at the CSIR Conference Centre, Pretoria.

Mr Schoeman said these recommendations originated from a wide spectrum of transport-related public and private sector organisations. Recommendations are being formulated in two phases. "The first phase of the study (analysing and reporting on the status quo) was completed in April 1984, whereafter seminars were held to further involve the public to ensure that the reported status quo was fully comprehensive.

"Phase II of the study is the evaluation phase and is currently in progress. In Phase II issues which were identified in Phase I are being addressed. For each issue, possible options for change are considered in the light of various scenarios. A preferred option, with the interest of the country as the main consideration, will then be recommended for each issue area," he said.

The minister said that four transport policy areas were being addressed: namely freight transport policy, passenger policy, transport co-ordination in southern Africa and the organisation of transport. "In the project on 'Intermodal freight competition' one is looking for a way to move towards a system of more equitable and effective competition in the freight transport market in order to provide the South African consumer with a less expensive but efficient transport system. The basic thinking on this subject centres around the adjustment of the status quo in three areas: financial inequities existing between the modes, economic controls hampering free entry into the market and technical controls in some modes."

"In the 'Passenger transport policy' project, the focus is to allow a place in the sun for all modes of transport, taking into consideration the existing composition of the market, i.e. the current bus, taxi and train fleets. An important direction here is to 'localise' public transport, i.e. at regional services council level. The financial issue of subsidisation of uneconomic passenger services is, of course, a burning issue in public trans-

port. This problem is also being addressed in the study."

He said that it had to be clear that the co-ordination of all aspects of transport with South Africa's neighbours, primarily the TBVC (Transkei, Bophuthatswana, Venda and Ciskei) states was essential if any orderly transport system was to be obtained. "This is the objective pursued in the 'Co-ordination of Transport' project. This project is of an ongoing nature and is done in close co-operation with the multilateral technical committee on transport.

"The 'Organisation of Transport' project is looking for a more rational and workable reorganisation of South African Transport Administration which makes provision for current constitutional developments, developments within the multilateral co-operative structure and future transport regulatory policy developments. Substantial pro-

gress has been made by the study team in terms of recommendations on the reorganisation of transport."

Minister Schoeman anticipated that legislation would be ready for consideration at the 1986 parliamentary session to establish a mainly private sector transport advisory council which would advise the Minister on all matters of transport policy. "Similarly, it is foreseen that legislation will be drafted to provide for the establishment of a transport tribunal, responsible for the settlement of transport disputes in terms of specific acts. To start off with, the tribunal will be responsible for the road transport and air services acts. Draft bills in this regard will soon be made available for public comment.

It was expected that results of the study would be available in the near future.

CSO: 3400/185

## ANNUAL TRANSPORTATION CONVENTION DISCUSSED

Johannesburg THE SOUTH AFRICAN MECHANICAL ENGINEER in English Sep 85 p 380

[Text]

"South Africa's transportation assets—the way ahead" was the theme of this year's Annual Transportation Convention which was held from 29 July to 2 August at the CSIR Conference Centre, Pretoria.

Papers were presented on a wide range of topics covering marine transportation, road freight transport, transport and traffic safety, transportation assets and developing countries, and more.

### Marine transportation

Some of the papers addressed changes in marine transport in the foreseeable future. One paper mentioned the sail-assisted motorship, the "Usuki Pioneer" and others the hovercraft, variants of container ships and towed bags containing liquid cargoes.

The most likely change to take place seems to be in the management field where proper co-ordination of all transport modes linked to marine movements will have to ensure that shipping remains fully employed, that turn-around time in ports is reduced, that harbour handling facilities are improved and fully utilised, and that inland operators who handle containers play their part effectively.

Another important area which was covered was that of global marine transport systems. One speaker explained the concept of global systems including the

recently established round-the-world lines. He also set out the economic criteria for the successful operation of future marine transport undertakings.

### Road freight transport

Various aspects of regulations for road freight transport were discussed. One speaker questioned whether trucks were given sufficient consideration when roads were planned. Roads are being designed with long gradients of up to five per cent or more, which is unsuitable for effective truck operation.

An expert psychologist pointed out that more had to be demanded by operators from prospective drivers than only a driver's licence. The quality of the training they received was even more important as well as the consequences of driving under the influence of liquor.

### Transport and traffic safety

An illumination specialist, who addressed the conference on the human eye, said that not enough was being done for travellers to see properly at night or to ensure safety of pedestrians. He suggested that all organisations involved should formulate a code of national illumination standards as well as methods of implementing them.

Associated with this subject is the poor marking of heavy vehicles. Retro-

reflectors can become ineffective owing to encrustation by mud; often confusing signs carried by trucks also lead to accidents, especially at night. A researcher at the NITRR pointed out that current warning signs were ineffective. He said that chevrons were inadequate owing to low reflectivity and insisted that signs had to be detected and recognised at least 200 metres away even under the most unfavourable conditions.

#### **Transportation assets**

A few papers were presented on the management of the country's transportation assets and their conservation. Several modes—road, rail, sea, air and pipeline—were discussed as well as the fact that these could yield infinitely more if a more rational approach were made to the application of high technology to the management of traffic.

From various papers it transpired that the benefits of containerisation appear likely to be appreciably increased by application of advanced telecommunication techniques. Much was also said on the improvement of national productivity, especially in the light of heavy investments needed in transport.

CSO: 3400/185

## MINI-CONTAINER MANUFACTURING INDUSTRY DEVELOPED

Johannesburg THE SOUTH AFRICAN MECHANICAL ENGINEER in English Sep 85 p 378

[Text]

The SA Transport Services have developed a unique form of freight unitisation which reduces repetitive handling with respect to transit traffic and gives improved protection for freight in transit.

The freight bin (mini-container) concept affords the smaller potential container user the benefit of containerising his traffic, such a service currently being limited by the use of three-metre containers. The freight bin measures 1,457 m (width), 2,438 m (depth) x 2,591 m (height), has a payload of 3 000 kg and a cubic capacity of 7,9 m<sup>3</sup> (which represents a quarter TEU). The smaller size also accounts for a reduction in packaging requirements.

Reinforced glass fibre panels and 3CR12 stainless steel will be used for the framework of the freight bins. These materials are anti-corrosive and unpainted, and will account for a reduction in maintenance costs.

A sum of R254-million has been allocated to the manufacture and phasing-in of freight bins over the next five years. An additional amount of over R45-million will be added to the rail wagon refurbishing programme whereby about 7 000 existing rail wagons will be modified to facilitate the conveyance of freight bins.

These rail wagons will be equipped with additional twist locks to accommodate the smaller size of the freight bins. These modified container wagons are also capable of securing three-, six- and twelve-metre containers and need not be used exclusively for freight bins.

The intermodality of freight bin working also requires specially equipped cartage vehicles which will be accommodated in the normal replacement schedule of such vehicles. These vehicles will be equipped with twist locks on which the freight bins will be secured, thereby eliminating the need for a trailer.

The length and height of the original haulers, with trailers, proved unwieldy for freight delivery in urban areas. The converted cartage vehicles will be able to convey two freight bins simultaneously, which will ease delivery in these areas during peak hours.

The freight bin concept will include a guaranteed express parcel service nationwide and will be phased in gradually commencing in 1986. This concept will initially be used on the Fastfreight service which, as a result of its improved service level to the client, has grown beyond all expectations since its inception in 1983.

SOUTH AFRICA

MAGNIS TRUCK TO PRODUCE JAPANESE VEHICLES

Johannesburg THE SOUTH AFRICAN MECHANICAL ENGINEER in English Sep 85  
pp 378-379

[Text]

A new round in the battle for supremacy in the South African market has opened with the launch here of a new generation of Japanese commercial vehicles to be built in large numbers by Magnis Truck Corporation.

The company is mobilising its financial muscle, South Africa's biggest and most modern truck building plant, and a national network of 85 dealers in the first phase of a bid for increased market share.

Already Magnis is Africa's largest truck-maker, thanks to its development and manufacture of the military Samil vehicles, plus its civilian Samag and Nissan Diesel model ranges.

Now it has invested several million rands and geared up its Rosslyn plant for the large-scale local production of the new generation Nissan Diesel truck range which has already taken the Japanese domestic market by storm.

The South African venture is so important that an engineering team has been working at Magnis for nearly two years to get the new truck into production here before any other country outside Japan.

Called the Condor in most of the world and to be known as the Nissan-Diesel CM Series in South Africa, the new Nissan Diesel truck will spearhead the attempt by the Japanese automotive industry to win a significant share of the

American heavy commercial vehicle business, as they have already done in the bakkie sector. It may also lead an export drive by the Japanese into the fiercely competitive European commercial vehicle market.

Since it was formed in 1982, the Magnis Truck Corporation has been broadening its model range. The takeover by Sanlam of the Magnis parent company, Messina Limited, towards the end of 1984, and the subsequent incorporation of Magnis into Sankorp, a holding company controlling a large number of Sanlam's industrial and financial holdings, has added new impetus to the company's growth and has speeded up its endeavours to become South Africa's top seller of civilian heavy commercial vehicles.

Magnis was created from Truckmakers as part of the Messina mining and automotive group's policy to rationalise its Nissan Diesel and Samil truck-manufacturing operations. The first major development from this was the emergence two years ago of the Samag premium trucks. They have a unique European and South African pedigree combining design elements from Iveco, Europe's No. 2 truck manufacturer, and the local military Samils.

The Samags gave Magnis coverage of the premium South African truck market between 12,5 and 26 tons gross vehicle mass (GVM) with both forward

control and bonneted designs of freight carriers, tippers and truck tractors using ADE engines of 94 kW upwards. The normal control models have proved particularly popular in off-road operations.

Magnis also has a range of Nissan Diesel trucks with engines from 94 kW to 206 kW and ranging from 10 to 26 tons GVM. But still missing from the line-up has been a competitive truck family in the 7,5 ton to 15 ton sector, which is the high volume and most competitive segment of the local market.

Now Magnis plug that gap with the new CM Series, which managing director Don Fyfe and his team have geared up to make and sell in large volumes. The CM Series will be available in truck tractor, freight carrier, rigid chassis and tipper variants with six model variants in both narrow and wide cab versions giving complete coverage of this high volume sector.

First in line is the 8-ton CM8 which will be the first truck launched in South Africa to use the ADE 314C engine. Designed to offer outstanding economy and performance in town delivery work, es-

pecially on the Reef, the CM8 has been fitted with 16-inch wheels to give a low loading height and easy cab access.

Next comes the CM10 with a GVM of 10 tons and a naturally aspirated six cylinder ADE 352 engine. It has been designed for those operators who require a greater loading capacity than that of the CM8.

The CM12, which has also been equipped with ADE's 352 engine, is available in two wheelbase lengths for both tipper and freight carrying applications.

Finally, topping the list, come two CM15 models featuring turbo-charged ADE 352T engines and six-speed gearboxes. Available in both long and short wheelbase versions they are suitable for tipper, truck-tractor, and freight carrying applications. The two CM15s and the CM12 models have been fitted with the wider cabs.

Already Magnis is a potent force in the medium commercial vehicle category of light 2 to 3 ton payload trucks as it makes the very successful Cabstar range for sister company Nissan SA.

CSO: 3400/185



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SOUTH AFRICA

BRIEFS

PUTCO BUS COMPANY FARE RISE--PUTCO [Public Utility Transport Corporation] bus fares are going up. According to a statement by the company, a 14 percent increase has been approved by the National Transport Commission, but the hike has been adjusted to take into account the recent increase in the price of fuel. This means that PUTCO bus fares will be increased by 17.5 percent from the beginning of next month. The PUTCO statement says the company is aware of the economic situation, and has done everything possible to minimize the impact of rising costs on commuters, but the fare hike is unavoidable. A spokesman for the Soweto Civic Association has criticized the increase as yet another indication of the insensitivity that has become synonymous with the company. [Text] [Umtata Capital Radio in English 0700 GMT 5 Oct 85]

CSO: 3400/115

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ZAIRE

# FISCAL YEAR'S FIRST QUARTER DECLARED SATISFACTORY

Lumbumbashi MJUMBE in French 29 Jul 85 pp 1, 8

[Text] It is known that the executive council met last Friday under the chairmanship of Citizen Kengo wa Dondo, member of the central committee and the political bureau, and first state commissar. As we promised in our weekend edition, we offer below a complete report made out at the conclusion of this meeting by Citizen Ramazani Baya, state commissar for press information and spokesman for the party-state's executive organization.

"The directives issuing from the president and founder of the MPR [People's Movement of the Revolution] and president of the republic were communicated this Friday to the state commissars by First State Commissar Kengo wa Dondo, member of the central committee and political bureau, who chaired the meeting of the executive council, the last for July. The meeting dealt with two items, one internal and the other external.

With regard to foreign affairs, the council was informed of the official visit of President Omar Bongo of Gabon and his wife beginning on Saturday. His visit followed that made by the president and founder of the MPR, together with Mama Bobi Ladawa to Libreville from 22 to 24 July 1985.

The Gabonese president, who has never visited the hinterlands, except for Kisangani, will spend 48 hours of his stay in Zaire in Gbadolite.

In internal affairs, the council members were apprised that the head of state had chosen Mbuji-Mayi as the location where he would chair the next expanded meeting of the executive council.

On the agenda for the 2 August meeting in the Kasai-Oriental regional capital, the head of the party wanted listed the problem of tightening border control, particularly in the area of trade in agricultural, mining, and manufacturing products.

During this meeting, the state commissar for national administration will present a complete file, based on the reports of the MPR regional presidents, taking stock of the border trade which is being carried on in their respective

areas. Equally concerned about the impact of the rise in fuel prices on agricultural production, following the analysis of the structure of these prices, the president and founder of the MPR asked the council to decide on concrete measures to limit the effect which fuel prices are having on the cost of food products. An interdepartmental committee, chaired by the head of the economy and industry department, was created to prepare a report for next Friday's meeting. It will also have the task for the same occasion of establishing price projections for petroleum products until the end of the year so as to gauge their repercussions on economic activity.

The committee includes the departments of planning, mines and energy, transportation and communications, agriculture and rural development, finances and the budget, and the president of the Bank of Zaire.

After the First State commissar's announcement, the executive council heard the reports of the state commissar for planning with regard to the program for the restoration of the Kisenge mining company and another from the economic affairs committee on the first quarter of the fiscal year.

After discussion, the council accepted the reports of the planning committee and gave directions to its chairman to continue the negotiations begun with foreign partners for the modernization of the Kisenge mining project which produces manganese but whose activities, mainly oriented towards export, have been affected by the closing of the Banguela railroad since 1975.

From the analysis of the report on the first quarter of the current fiscal year presented to the council by the economic affairs committee, it appears that generally speaking the social situation is satisfactory, and that calm reigns both in public and private business. The payment of public administration personnel proceeded normally after the planned readjustment of salaries which went into effect last 1 July.

Where public finances are concerned, the report of the economic affairs committee indicated that the council followed its budget up to last 30 June in conformity with the performance criteria called for in the program adopted with the assistance of the International Monetary Fund. As a matter of fact, during this period revenues rose to 18.657 billion zaires compared with 20.146 billion zaires in expenses.

After consolidating the treasury's total operations, the budget deficit of 1.489 billion zaires was reduced to 385.7 million zaires for the first quarter. The deficit was absorbed in the amount of 301 million zaires by bank financing, and 84 million zaires by treasury bond subscriptions. Bank financing and treasury bonds are thus definitely below the ceiling set at 1.35 billion and 300 million zaires respectively in accordance with the International Monetary Fund.

Where the exchange rate is concerned, the report noted that over the last few days Zairian currency has done well against the American dollar, with the last assessment on 24 July putting the ratio at 50.55 zaires to the dollar. Mining production was up 2.3 percent for the first 5 months of the year in relation to the same period in 1984. This progress is to be explained almost

exclusively by the output achieved by GECAMINES in copper production despite the difficulties encountered in transportation and therefore in exporting. By comparison, small scale gold production continued to show a marked decline due in large part to fraud and to the drop in gold prices on the world market.

It may be recalled that the council had already taken a series of steps to suppress fraud and to promote gold production.

In agriculture, the weakness in export production registered during the first 5 months was linked basically to difficulties in transportation, and to the drought which was affecting the northeast of the country. Nevertheless, the situation showed definite improvement as of April when production increased by 24 percent.

During the first 5 months of the year, manufacturing production was up 9.8 percent in relation to the same period of 1984 due to improved supplies of primary materials, semiprocessed goods and spare parts, and to the measures adopted for economic liberalization.

Where prices are concerned, the adjustment of prices for oil products, water and electricity, salaries and transportation costs, as well as other effects of anticipation, accelerated the pace of inflation from January to the end of May 1985, and is now at 11.3 percent in relation to December 1984. Since then, the tendency has been for slowing inflation and it is expected that the annual inflation rate will not exceed 20 percent.

In conclusion, it may be affirmed that for the first quarter of the 1985 fiscal year, the trend of economic indicators as a whole is far from endangering the main objectives established at the beginning of the year, in particular: 2.3 percent growth in the gross national product, moderate inflation, and progressive reduction of the budget deficit.

A few days before 1 August, the anniversary of parents which, as everyone knows, will be celebrated from now on as "remembrance day," the president and founder of the MPR passed on these guidelines, solemnly reminding the members of the executive council, and through them all party activists, of the meaning of this day. Indeed, it is an occasion which should enable everyone, father, mother and children, to become more aware of their duty to the family, the party's primary cell, and in a special way to show greater solidarity among all its members. The morning will be devoted to honoring the dead and the afternoon to honoring the living.

It is so true that as part of our authenticity, as the head of state so well put it, life means community, and also the communion of the living and the dead.

9824  
CSO: 3419/572

ZAIRE

EXECUTIVE COUNCIL REVIEWS ECONOMIC SITUATION

Kinshasa ELIMA in French 31 Aug-1 Sep 85 p 8

[Article: "Survey of the Economic Situation"]

[Text] At the weekly meeting of the Executive Council, this Friday 30 August 1985, which took place at Council Hall and was chaired by member of the Political Bureau Central Committee, first state commissioner Kengo wa Dondo, there were two items on the agenda: the keynote address of the Party Executive coordinator, and the examination of the report of the Committee on Economic Conditions.

In his keynote address, the first state commissioner conveyed to the Council the guidelines of the chairman-founder of the People's Movement of the Revolution [MPR], the president of the Republic, designed to ensure the correct operation of the various departments of the Executive Council.

As for the report of the Committee on Economic Conditions, it focussed on four major points, viz.: wages and employment, variations of the leading economic indicators during the first half of 1985, the state of completion of the economic and financial adjustment program as of 30 June 1985, and the artisanal mining of gold and diamonds during the first half of 1985.

Concerning the first item of the report, the state commissioner for budget reported to the Council on the extent to which the payroll for August 1985 had been met.

In this connection, the Council noted an appreciable staff decrease over July 1985, due to the joint efforts of the Civil Service and Finance & Budget Departments. Indeed, the active and pensioned staff dropped from 179,617 to 179,501 agents, i.e. 116 less. As a result, the August 1985 payroll was 26,292,740.25 zaires less than for the previous month, thus leaving a significant surplus for the Treasury.

The second facet of this chapter involved the labor situation in enterprises, which remains peaceful throughout the country, in spite of a few wage demands here and there. Actually, the National Union of Workers of Zaire (UNTZa) has negotiated and signed several labor contracts and protocols of agreement concerning the job classifications that were drawn up, labor union training, the

election of union delegates and meetings and general meetings organized to harmonize labor relations and debate various labor problems of enterprises.

With respect to problems concerning the industrial sector, in particular the 1,500-zaire toll tax collected on all trucks entering the ONATRA [National Transportation Office] ports at Matadi and Boma, the Council decided that this tax would be suspended immediately pending consultations between ANEZA [National Association of Zairian Enterprises] and ONATRA, under the supervision of the department in charge.

The Council then heard the state commissioner for planning's report on leading indicators for the first half of the current year.

This report shows that, compared with the corresponding period of last year, this period as a whole has been marked by a certain slowing down, especially as far as mine production, construction and exports of agricultural products are concerned.

The decline noted in the mining sector is essentially due to frequent plant equipment breakdown and transportation problems.

As far as foreign trade is concerned, although exports declined by 2.7 percent, imports increased by 12.2 percent.

At monetary levels, the rate of inflation was 14.5 percent during the first half of 1985, the goal set under the readjustment program signed with the International Monetary Fund being 20 percent by the end of 1985.

In addition, the rate of exchange of the Zaire currency was depreciated by 20 percent with respect to the dollar between January and June 1985, compared with 12.95 percent for the corresponding period of 1985.

As far as domestic prices are concerned, they rose by 17.6 percent during the first half of 1985, compared with the same period of last year [as published]. The accelerated variation of domestic prices is influenced to a large extent by several factors, in particular the behavior of the zaire currency, the price level of oil products, the readjustment of transportation prices, etc.

To improve the situation, the Council recommended measures involving the rigorous implementation of the budget, the reorganization of public enterprises to bring their operating costs and their contributions to the State budget under control, the stabilization of exchange and inflation rates, and a selective policy of credit to the economy.

On the other hand, appreciable progress was observed in many of the country's other economic sectors. These are in particular the manufacturing industry, the oil industry, and the water and energy sector, which grew respectively by 9, 10 and 1.7 percent during the first 5 months of the year.

Investments approved in the Code, too, continued the growth trend that started after major economic liberalization measures were taken. They actually grew by 76 percent, and will make it possible to create about 4,000 new jobs.

Public finances also did well, considering that monetary financing was limited to 301.5 million zaires for a ceiling set at 1.35 million zaires on 30 June 1985 [as published].

(To be continued)

9294

CSO: 3419/8

ZIMBABWE

STATE RESETTLES OVER 900 FAMILIES IN SESSOMBI AREA

Harare THE HERALD in English 26 Sep 85 p 5

[Text] The Government has resettled 976 families in the three-part Sessombi resettlement scheme in the last three years.

The resettlement officer for Mashambazhou Council, Kwekwe, Cde Enock Munyenyiwa, told a council meeting last week that more families would be resettled in the district when the Government acquired more farms to establish the Sessombi IV scheme.

He said the Government had provided material worth \$840 000 for the construction of four schools and 28 teachers' houses in Sessombi I. Twenty-seven boreholes had been drilled and about 87 km of road at the scheme regraded.

A clinic was constructed at the Nyoni Rural Service Centre and 10 staff houses had been built at a cost of about \$108 000. Plans were also under way to build an administration block at the centre and six diptanks had been repaired and were now operational, he said.

The officer said that there were plans to build a proper primary school to accommodate pupils using a farm house as class-room in Sessombi II scheme. An additional school would be built in Sessombi II and officials from the Department of Physical Planning were at present demarcating land for the building of a rural service centre.

About 200 families who were resettled in Sessombi III in March this year had already completed building their houses. The families were also engaged in poultry and school uniform-making projects.

Cde Munyenyiwa said farmers in the area had harvested 21 000 bags of maize and 200 bales of cotton and sent most of their produce to marketing board depots.

CSO: 3400/117



ZIMBABWE

LIBYANS TO NEGOTIATE TOBACCO DEAL

Harare THE SUNDAY MAIL in English 22 Sep 85 p 4

[Text] A delegation from Zimbabwe is expected to visit Libya soon to finalise details of an estimated \$20 million tobacco agreement with that country.

The Secretary of the Libyan People's Bureau, Cde Amer Mohammed Tughar, last week said that the visit by the Zimbabwean delegation follows an earlier one to this country by a delegation from the Libyan Tobacco Company.

The Libyan Tobacco Company delegation, here last month, was led by the company's general manager, Cee M. Gamat. They were in Zimbabwe for 10 days "during which they had negotiations with different tobacco companies to buy large quantities of Virginia".

For the past three years Libya has been buying tobacco valued at more than \$20 million a year.

Asked why Libya was expelling expatriate workers from Tunisia and Egypt, Cde Tughar said that the reason was economic and political. Since the early 1970s Libya had been engaged in extensive development programmes to develop the country in different fields, and to execute these programmes, it had been necessary to import foreign labour.

"Now with the completion of these development programmes, the time has come to reduce the number of foreign labourers and the governments concerned were notified in advance about the decision. We notified their governments that they should recall their nationals or we would return them."

He said that the governments of Egypt and Tunisia had been informed of the Libyan decision in 1983. "The other aspect is political. We cannot afford to send hard currency to support countries that are acting against us. We are asking these countries to serve the national interests of the Arabs. Libya is committed to the concept of Arab unity."

CSO: 3400/117

ZIMBABWE

COPPER CONTRACT WITH AUSTRIA WILL MEAN INCREASED EXPORTS

Harare THE HERALD [Business] in English 26 Sep 85 p 1

[Article by Andrew Rusinga]

[Excerpts] The contract signed between Aluminium Industries and Austria Metall AG will provide Almin with a guaranteed overseas export market worth about \$1,2 million a year in foreign exchange.

The copper-alloy plant will save the country about \$900 000 through import substitution. Together with projected export sales of \$520 000 to Zambia, Tanzania and Malawi, the net foreign exchange benefit to Zimbabwe--through import substitution and exports--will be about \$2,65 million a year.

Almin managing director Mr Peter Pyle told Business Herald this was the first time that Zimbabwe had secured first world markets for high-tech copper products.

"But we will have a problem with competitiveness. The plant we are building will have a capacity of 3 000 tonnes a year. The first world market has plants with capacities of up to 50 000 tonnes a year."

Almin announced last week that it had signed a \$5,5 million contract with the Austrian firm to design, supply, erect and commission plant and equipment, Austria Metall would also train Almin personnel.

Mr Pyle said in addition to the \$5,5 million, an additional \$1,5 million would be spent locally on buildings and infra-structure.

Almin's top toolmaker, top technical officer and operations manager will be sent to Austria for training.

Contractors for the buildings should be on site in January and will complete their work in April. Equipment will start arriving and should be fully installed for manufacturing in December next year.

Mr Pyle said the experiences and development of the Austrians was particularly relevant to Zimbabwe because they had developed their capabilities in this field from small beginnings through adaptation and without any multi-million dollar investments. "And this is exactly the same thing that we are trying to do here. We are mirroring their development process of the past 20 years."

CSO: 3400/117

END